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OUTDOOR RECREATION ACTION

Report 28

U.S.DEPARTMENT OF THE INTERIOR
Bureau of Outdoor Recreation

OUTDOOR RECREATION ACTION

Summer, 1973
Report No. 28

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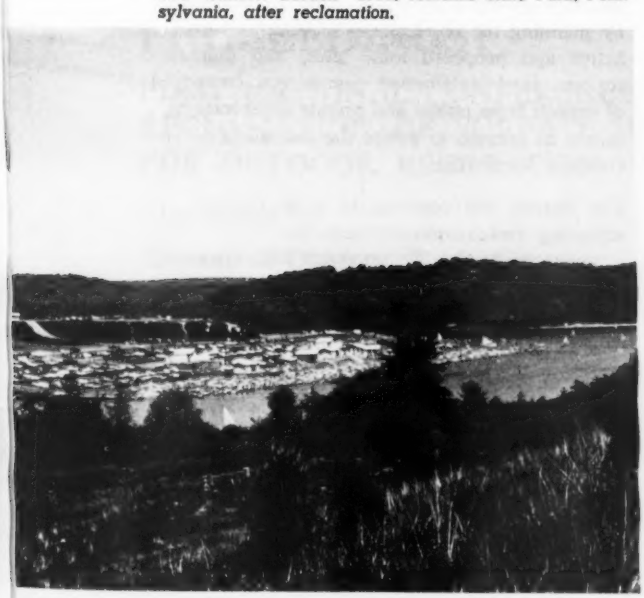
MINED LAND RECLAMATION IN BRIEF

The "Sunken Garden" area, Moraine State Park, Pennsylvania, before reclamation.

The "Sunken Garden" area, Moraine State Park, Pennsylvania, after reclamation.



By Dave McCraney
Bureau of Outdoor Recreation

"The challenge of mining has to be equalled by the challenge of reclamation," Secretary of the Interior Rogers C. B. Morton said May 15, 1973, before the first National Conference on the Reclamation of Surface Mined Lands for Outdoor Recreation.

America has reaped a great economic harvest through surface mining. In recent years, surface mining has accounted for 94 percent of America's mineral production. In 1971, this production was valued at $9.5 billion. Over 4 million acres of land have been surface mined, with at least 1 million acres disturbed since 1964.

Surface mining, ranging from coal stripping to gravel quarrying, takes place in all 50 States. But not all surface mined land remains a blight on the countryside. Approximately 1.8 million acres have been reclaimed by man or nature. However, at least 2.2 million acres remain badly scarred today and are in need of reclamation.

Effective reclamation can return surface mined land to productive use. Current technology already provides a variety of reclamation techniques, from simple contour grading and revegetation to extensive land reshaping for specific purposes and treatment for the abatement of acid mine drainage.

The Department of the Interior is committed to dealing with the very real problems arising from surface mining. In February 1972, Secretary Morton said, "It is the policy of the Department of the Interior to commence a program to restore for useful purposes the lands which lie blighted from previous mining operations. Lands will be protected and restored for planned future uses such as industrial or

commercial development, wildlife habitat or recreational opportunities."

The Interior Department has initiated a 3-fold program to assault surface mining problems. First, the Department seeks to intensify research and demonstration work on mined area reclamation. Second, it has encouraged States and localities, through the Land and Water Conservation Fund and other means, to acquire and develop land previously damaged by surface mining. Third, the Department has developed and submitted to the Congress comprehensive mined land legislation whereby land would be restored to useful purposes when environmentally and economically feasible. This legislation is designed to include mined land reclamation in land planning and to involve all levels of government in the process of planning and reclamation.

Data compiled by Interior's Bureau of Outdoor Recreation and Bureau of Mines plus private industry indicated that thousands of surface mined acres have the potential for recreational use if properly reclaimed. Accordingly, the Bureau of Outdoor Recreation has a key role in stimulating mined land reclamation for outdoor recreation.

The Bureau of Outdoor Recreation initiated the Surface Mined Lands for Recreation Program to demonstrate the practicality of reclaiming surface mined land for outdoor recreation.

Under the reclamation-for-recreation program, Land and Water Conservation Fund matching grants have been made available for demonstration reclamation projects. The Land and Water Conservation Fund Program is administered by the Bureau of Outdoor Recreation.

These demonstration projects are being closely monitored to collect extensive reclamation and recreation cost and technological data. The information gathered from the program will be disseminated to assist and encourage Federal, State, and local governments, and private interests to reclaim mined land for outdoor recreation.

All levels of government and the private sector must cooperate if reclamation is to be realized. To further the achievement of Departmental goals, the Bureau of Outdoor Recreation has established a Reclamation Information and Assistance Center to aid all reclamation interests.

Apart from the demonstration program, the Bureau of Outdoor Recreation has assisted State and local governments in reclaiming mined land for recreation use through regular Land and Water Conservation Fund matching grants. In further pursuit of reclamation goals, the Bureau of Outdoor Recreation organized the first National Conference on the Reclamation of Surface Mined Lands for Outdoor Recreation, to be followed by a series of regional reclamation-for-recreation meetings.

The major recommendations of the National Conference were that State governments should be the focal point of a comprehensive inventory of surface mined land; that the Bureau of Outdoor Recreation should coordinate and disseminate data on sources of technical and financial assistance available to public and private reclamation interests; that the mining industry should play a key role in reclamation by planning for recreational reclamation on active and proposed mine sites; and that regional land reclamation committees, composed of experts from public and private organizations, should be created to advise the Bureau of Outdoor Recreation.

The Bureau will continue to work toward achieving reclamation-for-recreation complementing the Department's long-range reclamation goals. The Bureau will continue to assist government and private interests in their reclamation activities.

James G. Watt, Director of the Bureau of Outdoor Recreation, commented at the National Conference, "Reclamation-for-recreation challenges all government agencies and private interests to demonstrate their abilities as problem solvers. I am confident that we will meet this challenge and transform reclamation-for-recreation from a goal to reality."

Missouri's State Park Board will develop 1,000-acre Mark Twain Mine Site near Columbia as part of the Bureau of Outdoor Recreation reclamation for recreation demonstration program. Photo from Bureau of Outdoor Recreation Mid-Continent Region.

PROCEEDINGS:

FIRST NATIONAL CONFERENCE ON RECLAMATION OF SURFACE-MINED LANDS FOR OUTDOOR RECREATION

Organized by

Bureau of Outdoor Recreation
in cooperation with
Bureau of Mines,

U.S. DEPARTMENT OF THE INTERIOR
Washington, D. C.

Sponsors:

American Fisheries Society
American Forestry Association
National Association of Conservation Districts
National Coal Association
National Recreation and Park Association
National Sand and Gravel Association
Society of American Foresters
Soil Conservation Society of America
The Wildlife Society

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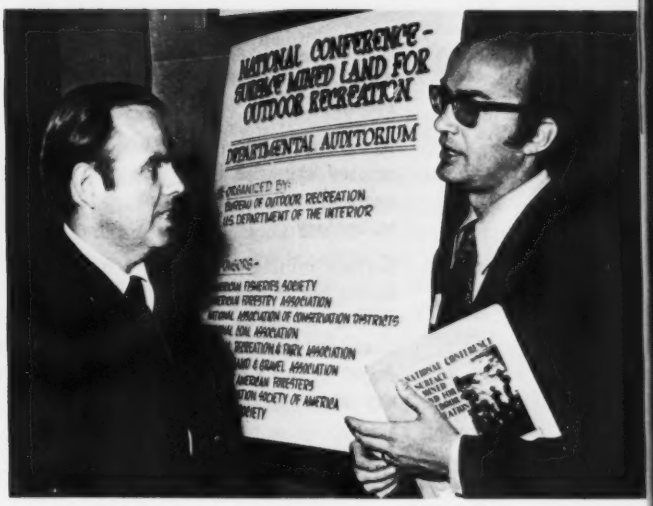
NATIONAL OVERVIEW OF THE PROBLEM

By James G. Watt
Director, Bureau of Outdoor Recreation



James G. Watt, Director of the Bureau of Outdoor Recreation and keynote speaker for the conference, visits with Orme Lewis, Legislative Assistant to U. S. Senator Paul Fannin.

This conference opens a broadly based public and private effort to transform scarred and wasted lands into productive, attractive recreation sites.

Represented are 50 national organizations with interests in parks and recreation, conservation, environmental quality, intergovernmental activities, the booming recreation business, and the mine and mineral industries. We also have representatives of nearly 35 Federal and State agencies, offices, or bureaus with roles or responsibilities relating to reclamation-for-recreation.

Your attendance here today demonstrates that while surface mining has been a problem for many years, neither the multiplicity of issues nor the diversity of interests should impede us from doing something about the problems **now.**

I called this a problem, and it is. But in every problem there is an opportunity. You can often tell a pessimist from an optimist by the way each looks at a situation. The pessimist sees the **problem** with dismay. The optimist sees an **opportunity** with excite-

ment. The fact that you are here today proves that you are optimists, and, that we share the conviction that reclamation-for-recreation is an exciting opportunity.

Studies leading to this conference did not recommend that we attempt the reclamation of all surface mined land. They did indicate that much of the land can indeed be recycled, and that outdoor recreation is a sound use for such reclaimed land.

I am confident that this common denominator will enable all of us—in government, in industry, and conservation—to plan successfully so that reclamation-for-recreation will benefit all Americans.

In his February 1973 Environmental Message, President Nixon expressed confidence that America's technological and economic ingenuity would be equal to our environmental challenges.

Secretary of the Interior Morton has assigned high priority to the reclamation of surface mined land.

This conference is a direct response to the President's confidence and to the Secretary's emphasis.

In recent years, modern developments have added considerable knowledge and increased expertise in mining technology, and in reclamation technology. The Nation's energy and minerals needs will continue to prompt the use of advanced mining technology.

Surface mining in one form or another takes place in all of the 50 States. The economic significance of surface mining is underscored by the fact that this form of mining produces some 94 percent of the total crude metallic and non-metallic ore mined in this country. Surface mining accounts for 52 percent of all the coal produced in the United States. Surface mining's environmental impact generally is clear and obvious.

The application of reclamation technology is largely dependent upon individual mine operators, State regulations, and economic considerations. Despite the lack of uniform national regulation, mined land reclamation has been in progress for many years.

The Nation's environment demands that we provide tools and create conditions to accelerate the reclamation of surface mined lands. Our investigations reveal that while a great amount of technical reclamation data has been compiled, no effort has been made to analyse the existing information in relation to outdoor recreation. In addition, there is a need for cost and technical data, specifically on reclamation for recreation.

To fill the informational and technical data gaps, and demonstrate the viability of the concept, we have initiated a series of demonstration projects to reclaim surface mined land for outdoor recreation nationwide. Eleven pilot projects are moving ahead.

So far seven demonstration projects have been approved to receive matching grants from the Land and Water Conservation Fund. In addition, four other projects have been selected and proposals are underway for their inclusion in the demonstration projects.

The seven approved projects:

Kellogg, Idaho, will develop 26 acres of mine tailings with two baseball-softball fields, tennis courts, multi-purpose court, picnic shelters, comfort station, and concession building. Cost: $138,-334.

Whitley County, Ky., will acquire and develop 333.5 acres of strip mined land eight miles south of Williamsburg. Developments will include site improvement, sewage, package treatment plant, water and electrical systems, camping, picnicking, playground, trails, boating, fishing, roads, multi-purpose building and trail shelters. Cost: $658,-711.

Sandstone, Minn., will develop an abandoned sandstone quarry area of 30 acres adjacent to

Kettle River, with utilities, comfort shelter, fire rings, picnic shelters, roads, and parking areas. Cost: $40,000.

Jackson County, Oreg., will acquire 159 acres of gravel pit for future development as a major regional park. Cost: $186,700.

Ontario, Oreg., will almost double the size of its 16-acre Beck Kiwanis Park by converting an adjacent 12.1-acre worked-out gravel pit into a public fishing and swimming pond. Cost: $53,-100.

King County, Wash., will reclaim a 19-acre gravel area in a growing suburban neighborhood near Redondo Beach, 20 miles south of Seattle. Cost: $600,000.

Spokane County, Wash., will reclaim a 22-acre gravel mined area to add water recreation opportunities and land space to its 1-acre Valley Mission Park about 5 miles east of Spokane. This is close to the 1974 International Exposition site; the County wants the project completed for use at that time. Cost: $253,520.

The four proposed projects:

Madison County and Huntsville, Ala., will acquire 4.69 acres and develop 214 acres of former clay pits as a regional water-oriented recrecreation complex. Proposed facilities include family campground, trailer camp, picnic area, baseball and softball fields, tot lot, tennis court, swimming pool and regional boating facilities. Cost: $1,011,000.

Orange County, Calif., will reclaim mined gravel pits and area of 100 acres on the Santa Ana River by developing facilities for boating, swimming, picnicking, bicycling, and hiking trails, landscaping and support facilities. Cost: $1,209,-516.

Missouri's State Park Board will acquire and develop 1,000 acres of coal strip mined land near Columbia. Developments will include picnic area, trails, playfields, roads, parking areas and an interpretive program. Cost: $204,000.

West Virginia will acquire 600 acres of strip mined lands for development of off-road recreational vehicle and shooting sports areas. Facilities will include visitors' information center, rifle and handgun ranges, training trails for beginners and trails for advanced ORV drivers, roads, parking and other support facilities. Cost: $645,500.

Orange County, Calif., will reclaim 100 acres of gravel pits such as this along the Santa Ana River as a demonstration project. Bureau of Outdoor Recreation Pacific Southwest Region photo.

We have taken the initial steps; we now have demonstration projects. We are searching for data and information upon which to base our programs. We plan to create within the Bureau of Outdoor Recreation a "reclamation information and assistance center" to serve all who serve the interests of reclamation for recreation.

The Interior Department will serve as a catalyst to pull together and assist in coordinating the persons, groups, and agencies that can get the job done. There are no Federal funding authorities specifically for recreation reclamation. Our success will depend on our ability to coordinate and develop the assistance, ability, and technology now available.

We need to channel the technical expertise, the professional recreation planning competency, the financing, and the research existing within the Departments of the Interior, Agriculture, Housing and Urban Development, Defense, the General Services Administration, and the Environmental Protection Agency, plus professional societies, civic, conservation, park and recreation organizations, and the mining industry.

Tomorrow we will hear from the Interior Secretary at a luncheon held at the National Press Club. And tomorrow also the Secretary will hear from this conference with respect to our workshops and our recommendations. I want to reaffirm my confidence that this group can help find the answers and develop policies that will make reclamation for recreation a truly productive program for this and future generations of Americans.

THE POTENTIAL OF SURFACE MINED LANDS FOR OUTDOOR RECREATION

". . . Some serious efforts must be made to systematically inventory mined lands by interdisciplinary teams capable of recognizing not only those lands which have outdoor recreation potential, but potentials for other uses as well."
Dwight F. Rettie.

By Dwight F. Rettie
Executive Director, National Recreation and Park Association

On behalf of the National Recreation and Park Association, I want to express our gratitude for the opportunity to assist in this conference. I would like to congratulate Secretary Morton, Secretary Reed, and Director Watt for calling this meeting. The sad thing is that this meeting is at least about twenty-or-so years too late. Because now we are told there is some 2.2 million acres of transplanted moonscape out there, land we have literally killed to feed the fires of progress, and now we turn our attention to trying to do something we should have done a long time ago.

Clearly, some serious efforts must be made to systematically inventory existing mined lands by interdisciplinary teams capable of recognizing not only those lands which have outdoor recreation potential, but potentials for other uses as well. It is possible some significant fraction of the 2.2 million acres can be adapted to serve recreation needs of one kind or another.

We also need to know a lot more about the ecology of mined land, about the long-term prospects for various vegetation, and about the economics of reclamation.

I am impressed by the already accomplished experimental and demonstration programs to test various recreational uses on mined lands; certainly experimentation is needed, but I am not very optimistic that there is going to be anything like enough money available to do things on a scale that is needed.

Rather than try to find new financial resources for such experimentation on already-mined lands, I think I am more optimistic about the possibility of directing such near term efforts to land that is just now being mined, where there are adequate (or at least first generation) laws and regulations looking toward reclamation and redevelopment. I think we should experiment with the money and pricing systems now applicable, and hope that in the process we will develop both information and technologies that will be useful to reclaiming the land we have already ruined.
The development of institutional mechanisms for pulling together the public and private resources needed to do the full reclamation job, including the development of recreational potentials for fully reclaimed lands, seems to me to be one of the most difficult aspects of the problem. After the land has, in effect,

been deserted the task will be much more difficult.

By combining the planning resources of professional recreation planners, the mining industry, and the regulatory bodies at the front end of the process, we may stand a much better chance of having the resources needed.

But such an approach will require some new strategies. It would mean having on the planning and engineering staffs of the mining companies new kinds of planning expertise, so that as the mining operation is being originally planned, the long-term potential of the land can be provided for. And at least some of the costs of "building in" the recreational potential would also be incurred at the time the mining is going on, and not all of it pushed off to a period following extraction of the material.

It would be very important to test concurrently the economics of earlier and more consistent reclamation. I am aware that the mining industry is skeptical about whether the producers can and should take on the full costs of reclamation. In the end the consumer pays. I have no specific economic data or theory that will ease that dilemma. The new investments required to reclaim some significant part of the land already mined could easily scare political decision makers and businessmen alike.

But again, some concentration on the new areas coming into use would seem to be useful to me, so that while the operator is still involved, recreational potentials can be devised and planned for. In cases where some relatively intensive form of recreation is involved, the long-term economics of a commercial recreational facility may make the entire operation more attractive from a cost and benefit point of view. Or if, for example, there were some form of collaboration between a mining operator and a State or county park system, the prospect of having the land donated to a park system following reclaiming might make the added investments for recreational exploitation more attractive. W h alternative land prices rising every year, trade-off investments in reclamation instead of paying for land might become more attractive.

The issue of title and ownership is one of the sticky issues surrounding mined land in many states. Surface mining is often done on complex ownership and title patterns, sometimes leaving the mined land in very confused status. Some experimentation in sorting out rights and ownership responsibilities could be of great help to planners, especially for areas that have already been mined.

The key, it seems to me, to successfully dealing with the potential for recreational developments of surface mined lands is the planning process. We simply must do a better job of understanding and dealing with the long-term consequences of utilizing our Nation's land and mineral resources.

What I'm arguing for would embrace the development of an environmental impact analysis of every major surface mining operation, before the operation is undertaken, and for all of those now being developed (or do we say undeveloped?).

But we need something more than just an analysis of environmental impact; we need an environmental plan of action that identifies strategies and puts down mechanisms for the long-term reclamation of surface mined lands.

We need a mining industry that has the planning capacity and sensitivity to develop or invent new uses for mined land.

We need recreation and park planners who can invent or devise ways of utilizing reclaimed land—for recreational purposes, and perhaps in a new kind of man-made environment in which we are trying to re-establish natural cycles that have been rather totally shattered. We should view surface mined lands and outdoor recreation within the context of land-use decisions locally, regionally, and nationally. For instance, we should recognize that recreation can be and is a stimulus for surface mined land reclamation, but it won't solve the entire reclamation problem.

We should identify present and project future needs without dwelling on costs;

We should see our plans and ideas as instruments for change;

We should develop rationales and criteria for assigning priorities;

And we should include an integrated program for research to answer the many physical and social questions that such plans raise.

As a Nation, we are now undergoing profound change: Our discretionary time is increasing; our historic work ethic has lost much of its

ability to foster personal development and interpersonal relationships; our transiency and mobility have put strains on family and community identities. We feel the need even more strongly than in the past for a sense of individual identity and self-worth.

A growing number of people feel trapped in non-fulfilling, repetitive jobs, feel dehumanized by their work environment, feel unsatisfied with themselves and with their lives.

In the past, and to some extent today, people have looked for and found their satisfactions and their identity in their work. However, for many people the work ethic no longer serves this purpose; and for others such as the aged, youth, and some handicapped, it has no meaning at all. But, we have not yet fully developed a complementary leisure ethic to help us meet our very deep and basic need for challenge, creativity, and commitment—those things which build within us fulfillment and the confidence of self-worth.

We are almost universally uneducated in how to use the discretionary time now available to us—our education is for work.

We feel personal and collective guilt by having increasing leisure available. And the social and peer pressure for making "constructive" use of leisure is great. Constructive in this sense is defined as productive and does not recognize the importance of non-active and non-production-oriented pursuits to our mental and physical well-being.

The consequences of this new reality of life in post-industrial America, it seems to us, is that recreation, park and leisure activities, areas and services must be given a new and compelling priority on the national agenda.

They can no longer be regarded as a frill and a luxury—they are a vital human necessity that touches a root cause of much personal and civic discontent. In this context, recreation, parks, and leisure planning must be considered in dealing with such symptoms of the identity crisis as drug abuse, student unrest, delinquency and crime, the resentments of our production workers, and the broad distrust of public and private institutions.

In this context, too, recreation has come to mean all of those things people may do that involve the use of their discretionary time. It is not just outdoor recreation or just indoor recreation. Both of those terms imply facility-oriented activities. There are other pieces of the system involving programs, and we should keep this foremost in mind when we talk about "potential." Not very many park, recreation and open space planners address themselves to museums, libraries, the cultural and performing arts, crafts, volunteer work, and non-school or non-degree education, for instance. But they are also part of the recreation picture, and some more comprehensive approaches would at least begin to treat education, cultural and artistic demands as part of a system of leisure demands that must be provided for.

Viewed in this manner recreation may suggest an unending, unmanageable, and subsequently meaningless proliferation of potentially competing activities and interests. This is admittedly a hazard, but a hazard which can be and should be examined and addressed if we are to maximize the potential of surface mined lands, indeed of all lands, for leisure.

The broader context of a more comprehensive planning framework will be regarded by some as a threat to the status quo. Whatever the reaction, it is likely we will be faced with decisions on competing priorities far more excruciating than anything we have so far experienced.

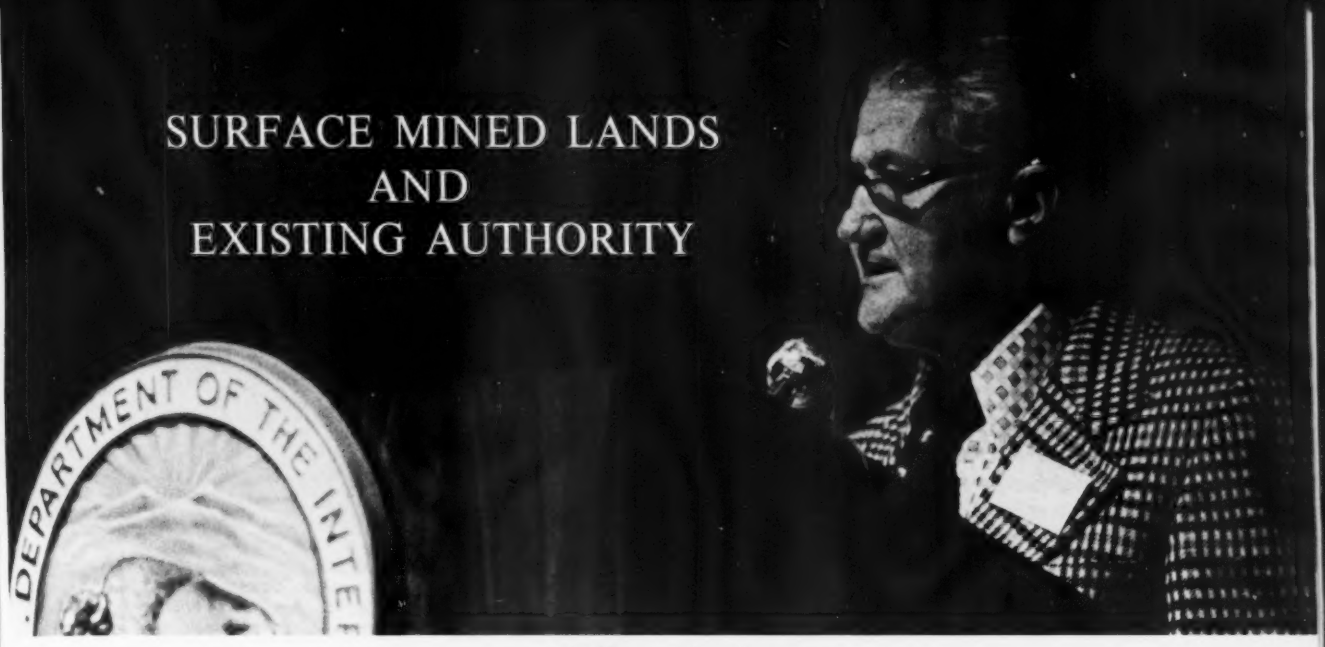
Whenever competing needs are more clearly defined and integrated in the planning process, decisions are almost universally more difficult. The trade-offs and the choices will not always be new. They will, however, be more explicit and that is good. It is difficult and unrealistic to make valid choices between vague alternatives.

If this conference does nothing else it will have served a useful purpose if it forces us to stop; if it forces us to ask questions: Am I doing all I can to maximize the physical and institutional resources available to me to provide the maximum number of leisure options for all persons?

When we start asking questions, and searching for answers, the potentials of surface mined lands for recreation become endless.

It is exciting that a stronger consortium involving the mining industry and the recreation and park movement may make a significant contribution to further the Nation's recreational needs. It seems to me this is the challenge and the opportunity of this meeting.

SURFACE MINED LANDS AND EXISTING AUTHORITY



By H. B. Charmbury
Assistant Dean for Planning and Development
College of Earth and Mineral Sciences
The Pennsylvania State University

A surface mine reclamation law, or any other law, is only as good as its enforcement. Any government can have the best law possible but without the proper enforcement it might as well not have any law.

The enforcement of a law depends strictly upon the enforcement agency and the authority given that agency, as well as the back-up by the overall government administration.

In Pennsylvania, we believe that we have one of the best surface mining conservation laws and one of the best enforcement agencies in the country.

There are two basic philosophies in dealing with those who violate the law. One is to prosecute the violator and take him to court, and the other is to help the violator correct his mistakes. Strange as it may seem, in Pennsylvania in the enforcement of the surface mining law, the latter method is used. In other words, the surface mine operator is, first of all, given a chance to correct his mistake within a reasonable period of time. However, if that operator fails to start his corrective steps immediately—as outlined by the mine conservation inspector—or if he continues to repeat his mistakes, the operation is shut down and the operator's license is in jeopardy. By operating in this manner, with this particular type of law, the mistake which has generally created a temporary environmental destruction is corrected. If, on the other hand, the operator is arrested and taken to court, the violation continues and a temporary environmental destruction condition becomes permanent, while the court decides. This is not a soft policy, but one which protects the good operator and eliminates the bad. This policy also preserves the environment.

The key to this philosophy of enforcement is a strong well-trained staff of inspectors, free of any political interference. You will note that I said earlier any violation or mistake must be corrected immediately as outlined by the inspector. This means that the inspector must know how to correct the violation and work with the operator in getting the mistake corrected. If the inspector doesn't know how to correct a violation of the law, then he doesn't belong on the inspection staff.

In Pennsylvania a mine conservation inspector must be a person of integrity, of good repute, of temperate habits and in good physical condition. The candidate for inspector must be between the ages of 25 and 55 and shall have passed a written and oral examination conducted by the Civil Service Commission. To qualify for the examination, the candidate must have had sufficient practical experience in surface

mining and conservation, or in lieu thereof, specialized education or a combination of education and experience as specified by the Secretary of the Department of Environmental Resources. If the above qualifications are met, the candidate must serve on a probational status for at least six months during which time the candidate will travel with a qualified inspector.

After being appointed by the Governor upon the recommendation of the Secretary, the inspector devotes full time to his duties of examining thoroughly each operating mine in his assigned district at least as often as the law requires. An inspector may be dismissed only for cause as defined in the Civil Service Act.

The training and education of surface mining inspectors and all operating personnel from top management to the laborer is one of the best ways to protect the destruction of our land and the pollution of our streams from surface mining. This has been recognized by the United States Bureau of Mines and the Division of Manpower Development and Training in the U.S. Department of Health, Education and Welfare. They asked the Department of Mineral Engineering at the Pennsylvania State University to prepare an outline of a course curriculum on "Integrated Surface Mining and Reclamation Techniques." This has been done.

Basically, the course covers all phases of the economics of strip mining, the mandatory health and safety standards, the Federal and State strip mining laws, the various strip mining unit operations, and the various methods of restoring the land to useful, productive and economical purposes. It is prepared to assist the owners, managers, supervisory people, and labor force to conduct their strip mining operations more economically, with good health and safety practices, and with the proper reclamation and restoration of the strip mine land.

The course is divided into 45, 1-hour units. It is recommended, based upon good educational practices and practical experiences with this type of course, that it be taught either 3 hours a night 1 night a week for 15 weeks, or 2 hours a night 2 nights a week for 10 weeks, with the last night being a 3-hour session.

Originally, 10 copies of the report were presented to the Division of Manpower Development and Training in the Health,

The flooded mined area to the left has since been reclaimed and acclaimed as an award-winning swimming and picknicking area called Shadow Cliffs Aquatic Park in the San Francisco Bay area. Photo from Bureau of Outdoor Recreation Pacific Southwest Region.

Education and Welfare Department. Later, the U.S. Bureau of Mines requested 100 additional copies, and still later, the Manpower Development and Training Division requested the original copy of the report so that they could prepare an additional 500 copies.

I am also pleased to report that the U.S. Bureau of Mines is going to sponsor a course based upon this curriculum in the State of Maryland. This will be done in cooperation with the Maryland Bureau of Mines in their Department of Natural Resources.

It is also understood that at least two other states, West Virginia and Montana, are interested in developing a course from this curriculum for the training and education of their inspectors and operating companies.

The Pennsylvania law which the inspector enforces states that any surface mine operator, and this includes the surface mining of metallic and nonmetallic minerals as well as coal, must first of all have a license. Then he must obtain a permit for each particular operation. To obtain a permit he must furnish information as to where and how he plans to mine and how he plans to restore the land to some useful purpose after mining. Thus, he must list the best use of the land prior to mining.

The permit application must include a map or aerial photograph showing the drainage area, above and below the area to be mined, and all streams, roads, railroads, utility lines, buildings, land owners, and municipalities.

Pennsylvania is restoring mined land in Moraine State Park to the original contour and vegetation, and developing recreation facilities with the aid of the Land and Water Conservation Fund. Pennsylvania Bureau of State Parks photo.

Some of the general regulations require the operator to keep all of the topsoil separate so it can be replaced after backfilling to approximate original contour or terracing. The mining cannot be within 100 feet of the right of way of any highway, cemetery, or stream or within 300 feet of any occupied dwelling, public building, or school. Any water which collects in the pit must be pumped out immediately and the discharge to any stream may not contain any acid, the pH must be between 6 and 9, the iron content must be less than 7 parts per million, and the suspended solids less than 200 parts per million. The length of the open cut, for bituminous coal out of the pit, is generally 1,500 feet and means that the backfilling is kept concurrent with the mining. Provisions must be made to prevent siltation from getting into any stream. These are the highlights of the mining requirements and regulations.

If the area is to be backfilled and planted, complete details and a timetable showing the types of trees, grasses, legumes, shrubs, or any combination of these for best revegetation without soil erosion must be presented.

Now, if the ratio of the volume of the mineral to be mined to the volume of the overburden is greater than 4:1 and if the mining operation is expected to exceed 10 years, reclamation other than backfilling is not only possible but expected. Other alternatives may be water impoundments, real estate development, industrial sites, waste disposal, and recreational areas.

If the application is accepted, the coal operator is required to post a bond prior to starting. The amount of the bond is determined by the Secretary based upon the total estimated cost to complete the approved reclamation plan, but in no case is the amount less than $5,000. In the case of a noncoal operation, other bonding arrangements may be made. However, the Commonwealth must be protected to bear the restoration cost should the company forfeit. If any company does forfeit its bond, it automatically loses its operator's license, and the company is no longer permitted to do surface mining in Pennsylvania.

With the law that we have in Pennsylvania and with the enforcement of that law we no longer have any land being permanently destroyed or any streams being polluted from current strip mining operations. The defiant, arrogant, irresponsible strip miner who destroyed our land and polluted our streams in the forties and fifties no longer exists in Pennsylvania. However, we do have over 300 licensed bituminous coal strip miners in Pennsylvania with over 800 active strip mining operations. These operators employ about 6,000 people and produce about 25 million tons of coal a year.

Surface mining is a must in this country to help meet our energy requirements and to help supply the other minerals required for our standard of living, but that surface mining must be done in a manner that protects our environment and preserves our other natural resources—stable land, clean air, and pure water.

"It is a regrettable fact that for years, society demanded the cheapest energy it could get, and the man who could mine coal and skimp on reclamation could often take the market away from the man who had to raise the price because he was restoring the land."

Rodney R. Krause.

INDUSTRY'S ROLE IN RECLAMATION FOR RECREATION

By Rodney R. Krause
Director of Reclamation Services
National Coal Association

In the public mind, playgrounds for people seem an unlikely byproduct of the surface mining of coal. Much of the public has been given the impression that the chief product of strip mining is not coal but training grounds where astronauts could practice moon walks.

For openers, let me set the record straight on a few points like that. Any major earth-moving job looks unattractive while work is in progress, and that includes strip mining. But any strip mining of coal today must be followed by reclamation. State laws require it in nearly every State where coal is produced by surface methods.

Furthermore, Federal strip mining and reclamation legislation is now on its way through Congress, and the upshot is almost sure to be more stringent reclamation requirements in some areas. I won't dwell on merits of the legislation here except to say that National Coal Association supports it in principle.

I will return later to the problems and possibilities of working with coal operators to get some recreation areas created during the course of their current mining and reclamation work. Let us consider first, however, the more publicized and more difficult aspect of the problem—land that was mined in the past.

Not all of this land is going to have a recreation potential, for a variety of reasons. Even if it has, you may often find that the coal company is not all that anxious to have the public turned loose on its property. This does not necessarily mean that the coal operators are the bad guys in the black hats. For example, if the access to previously mined areas is over company roads still used to haul coal from current operations, the "No Trespassing" sign is likely to go up because of a simple law of nature—the rule that says when a Volkswagen camper meets a 100-ton coal truck, the truck doesn't lose. Besides, it's against Federal law.

A lot of this mined land has been reclaimed already, some of it so well that the passerby cannot tell that it was once mined. Much of the rest has been reclaimed by the coal operators, with the degree of reclamation depending on the adequacy of the State law—if there was one at the time—and the knowledge and skill of the operator. And there was a third factor, also—the state of competition. It is a regrettable fact that for years, society demanded the cheapest energy it could get, and the man who could mine coal and skimp on reclamation could often take the market away from the man who had to raise the price because he was restoring the land.

Reclamation done on this land covers a wide range of uses. Some of the land in fertile farm areas is back in cultivation and yielding good crops. Other lands have been restored to a rolling contour, suitable for hay crops and

grazing. Still other areas have been planted to timber, sometimes with little earthmoving involved after the original shovels and draglines left. And some has been reclaimed only by nature, who may or may not have done a good job.

Therefore, it is difficult to generalize about the condition of mined land. It's also hard to make a general statement about its ownership. Some is still owned by the coal companies that mined it. Sometimes the mining companies owned the land but have gone out of business. Some mined land is in the hands of the original owners, or has been resold to others either before or after reclamation. Sometimes the original owner, having got more out of the land in the form of coal royalties than he could hope to realize from years of farming or timbering, simply abandoned it and quit paying taxes on it.

Many recreation opportunities already exist on mined land. Some of these areas just sort of happened, like Topsy. In the first place, most of the surface mining for coal is done in rural or sparsely settled areas, where fishing and hunting existed before the machines moved in. Fishing was probably the first general recreational use made of land after mining. Often the final cut of a surface mine left a pit. With the help of rainfall and seepage from springs, the pits became ponds.

The people who best knew the sites of these ponds were the men who made them—the operators of mining equipment. They began stocking them with fish, using the same varieties they caught in local streams and lakes, with minnows for fish food.

Nature played a big part in replanting some of the early surface mine sites, aided by landowners, coal operators, and at times groups such as Boy Scouts. Like the men who stocked the fish ponds, they used a little of whatever grew in the neighborhood. The result was a variety of trees and shrubs which offered shelter as well as food.

With water, some shade, some food and a place to hide, we have the basic ingredients of a wildlife refuge, and in many areas the wildlife returned. One of the most significant effects on wildlife population on mined lands was the conspicuous absence of that two-legged animal called man—at least until word got out that mined land can grow desirable crops of game.

All this amounted to a sort of unprogrammed reclamation, but it created some fish and game areas with recreational opportunities. As the job of reclamation grew more programmed, these prospects increased.

The support of local people is essential, of course, to the success of the recreation concept. In southeast Kansas, for example, chambers of commerce of eight communities have banded together to promote the hunting, fishing, and camping resources on mined land.

Near Canton, Ill., the State Department of Conservation and eight strip-mining companies have cooperated in reestablishing wildfowl, the 20-pound Giant Canada Goose, as regular residents of mined land. Starting with 30 mated pairs, the project proceeded into a goose population explosion, for when the goslings grow up, they return to the area to mate and rear their own young. The key to success, of course, is a period of no hunting—and the people in the community back it so enthusiastically that no outsider had better be caught even looking like he has visions of roast goose. In time, of course, there will be enough geese to support a hunting season, but until then, the local residents are a militant goose protective association.

In some mined land areas, wildlife is so abundant that it's a nuisance. For example, my old company, Ohio Power, stocked its reclaimed land with 20 beavers. In seven years there were more than 200—and they were building their own dams without filing environmental impact statements. They finally got so numerous that they have to be thinned out with trapping seasons annually to keep them in balance with the food supply.

A couple of years ago, we published a little leaflet at NCA listing the campgrounds open to the public on mined land. There were about 27 of these recreation areas, ranging in size from a few acres up to 20,000. We limited the list to those which offered camping facilities, but it still illustrates the diversity of accommodations which have been created. Some offered only primitive camping, others had grocery stores, movies, dancing, and tractor train rides. So far as I know, nobody has yet turned a strip mine into the local franchise of Lion Country or a third Disneyland. Maybe this conference will turn the trick.

Meanwhile, if you'd like that list of erstwhile coal mines that are now campgrounds, I have a few copies left.

The fact that current surface mining operations must be reclaimed soon after they are mined poses some possibilities and some problems if you are interested in recreation areas.

Obviously, if you are interested in creating a new area from the beginning, the reclamation process offers a way to do it. The time to get involved in the deal is long before the first earth is moved, clear back when the mine operator applies for a mining permit. That is the time to go to the operator and the land owner—who may or may not be the same—and propose a recreation area on whatever terms can be arranged. You have to get into the process this early, because most State laws, and most bills now before Congress, require the operator to submit a mining plan when he seeks a permit, and he must also submit a detailed reclamation plan.

If a recreation area is included as part of the final approved plan for the land, it can then be created as part of the regular process of grading, shaping, and revegetating the land. The cost will be lower, and the terrain can be tailored to the intended use.

There are some drawbacks to taking this route. It does not yield instant results—there is a time lag between the first planning and the final outcome, for you have to wait while the mining is done, the land is graded and seeded, and vegetation takes hold.

Secondly, this is somewhat higher-value land, since the coal operator is restoring it to productive use. If the operator—or land owner—does not devote the land to recreational use, he has the opportunity to turn it to some profitable purpose such as grazing, crops, or woodlands. It represents not only a considerable investment by the coal operator but a source of future income to the owner.

So—to put it bluntly—the higher value of land being reclaimed from current mining operations may make it harder to obtain, either by purchase or donation. Coal companies are composed of people, and they are public spirited (or not) in about the same proportion as the rest of the population. They have made some outstanding contributions, but this doesn't mean they are primarily in the giveaway business.

One outstanding example of a recreation area on mined land donated by a coal company is Friendship Park in Jefferson County, Ohio. This recreation area is being constructed on 1,100 acres donated by Consolidation Coal Company. The company planned its stripping, grading, and reclamation in a way to make possible a dam and 85-acre reservoir, an airport and fairgrounds. The county commissioners got help from the Bureau of Mines, Appalachian Regional Commission, the Bureau of Sport Fisheries and Wildlife and the Ohio Division of Water. The Appalachian Regional Commission, for example, provided three-quarters of the $1.1 million cost of the dam.

Friendship Park, Jefferson County, Ohio, is being constructed on 1,100 acres donated by Consolidation Coal Company. It exemplifies pre-planned reclamation for a specific use. Photo by Zande and Associates, 1187 East Broad St., Columbus, Ohio 43205.

The State, county, and the coal company all contributed to the cost of developing an airport with a 3,900-foot asphalt strip, a terminal, runway lighting, and other facilities. Again, preplanning of the mining, grading, and reclamation placed the airport in the proper location and minimized the additional work needed to build it. Four to six wooded picnic areas are planned, financed jointly by the county and a Bureau of Outdoor Recreation grant through the Ohio Department of Natural Resources.

Still in the design stage are a county fairgrounds racetrack and grandstand. Future plans include boat docks, swimming beaches and bathhouse, ski slopes, a golf course, nature trails, day camp areas, and other items.

Naturally, not all recreation areas on mined land will be so large or elaborate, but Friendship Park is a shining example of what can be accomplished by preplanning a recreation area along with the mining.

Let's return a moment to the problems you may find in some States if you seek the cooperation of coal companies in forming recreation areas in the process of reclaiming the land. There are limitations in State regulations on what the companies can do with the disturbed areas. For example, several States, particularly in Appalachia, do not permit water impoundments in the reclamation process. That pretty well wipes out the prospect of fishing ponds, swimming, water skiing or any other water-centered sport. Some States require the planting of a certain number of trees per acre, which is all right for camping, but doesn't do much for a softball diamond.

There may be a chance to solve this problem if the Congress passes a strip mining and reclamation bill under which the Secretary of the Interior sets criteria for State reclamation programs. The Bureau of Outdoor Recreation may be able to convince the Secretary of the need for exceptions to the broad reclamation standards to meet the special needs of recreation areas when they are included in the reclamation plan. This may seem like a minor point, but it could cause a lot of red tape and might ultimately block some worthwhile projects unless it is settled.

The problem does not exist, of course, on land mined before State reclamation laws were passed, or on areas which the States have accepted as reclaimed. Once the operator's bond is returned, those acres can usually be treated like any others.

At the State level, of course, the people can also help by making their wishes known to legislators so that the law can allow the development of mined land for recreation use. The Illinois law is a good example. Not only does it provide for the concept of recreation as an end use, but it is supported by regulations setting forth the standards to meet a basic recreation program.

Liability is also a problem in some States, where a landowner, whether a coal company or anyone else, may wind up in a civil suit if he allows the public on his land and somebody is injured. A change in these laws might open more lands for recreation.

Under whatever conditions you set out to make a recreation area, careful planning at the outset will keep you from wondering 5 or 10 years from now how you ever got into this tangle.

Fundamental to any decision about recreational use of the land, of course, is the needs of the land owner. For example, it's hard to convince a stockman with visions of green pastures, fat cattle, and a water hole that he should set aside part of that pasture as a wildlife preserve. He begins to think of the good possibility that one day a nearsighted deer hunter is going to bag the herd bull.

Once a decision is made that recreation can play a part in the use of a mined area, it's time to make a recreation resource inventory. Record the existing features that may enhance the project: Access, especially nearness to interstate highways; possible ski slopes; shaded campsites; potential lake sites; and so on. An old covered bridge or an abandoned one-room school, or an old barn with hewed timbers can yield materials for shelter houses. Environmentalists may object to a highway left standing, but geology students and amateur rock hounds love it, particularly if it contains fossils. Old haul roads can provide access, or be used as bridle paths or bike trails. You can plan areas for specialized uses, such as Braille trails for the blind, or fishing docks which can accommodate a wheelchair.

I have talked about some of the problems. These are some of the possibilities. The problems are not insoluble. The possibilities are endless. Good luck!

RECLAMATION FOR RECREATION– SOME CASE STUDIES

"Many sand and gravel operations are located within or near highly urbanized areas . . . there is a high demand for development land, and a ready market for lakeside construction sites."
William E. Hole, Jr.

By William E. Hole, Jr.
President, National Sand and Gravel Association

American Aggregates Corporation is principally engaged in the production of sand and gravel and limestone construction aggregates in the three-State area of Ohio, Michigan, and Indiana. Its first operation began at the turn of the century at Ft. Jefferson, Ohio, and since the mid 1920's American Aggregates Corporation has been recognized as the leader of the industry in the reclamation of worked-out sand and gravel pits.

In the part of the country in which our operations are located, most sand and gravel deposits extend below the natural water table. For this reason almost all of our operations generate lake areas. Such bodies of water have been the primary factor in determining the best after-mining use for the property and therefore the reclamation plan that we have adopted.

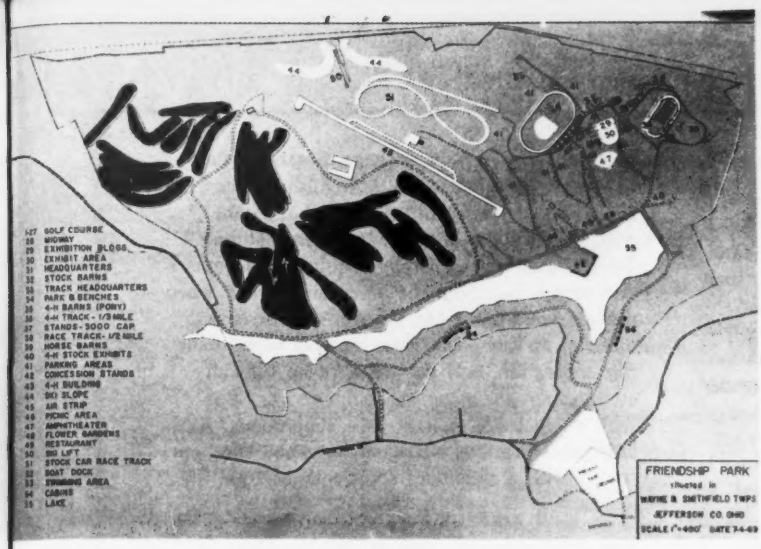
We call our reclamation program "Project Parklands." Such projects include residential, commercial, industrial, and recreational parklands.

It should be noted that sand and gravel is a heavy commodity used in sizeable quantities on all construction work. Due to its heavy nature, the cost of transporting the material to the ultimate consumer is a substantial portion of the total cost. Sand and gravel operations are therefore located as close as possible to the market place which is to be served. Many sand and gravel operations are located within or near highly urbanized areas. In such areas there is a high demand for development land, and a ready market for lakeside construction sites. So the economics of more than perfunctory reclamation are readily apparent. When one considers the utilization of such areas for recreation purposes, this inherent value for other uses must be taken into account.

American Aggregates Corporation is involved in the development of reclaimed areas into recreation areas in two different forms. The first is private recreational areas such as fishing clubs, and water sports clubs. Although we at first felt that this type of development did not serve the purposes of the public recreationists, we were informed by a public recreational planner that they did in fact relieve the pressure upon the public facilities. The second is public recreational areas.

There are several problems associated with the development of public recreational areas from reclaimed sand and gravel operations that are worthy of note.

At these locations where we attempt to make use of the reclaimed area as the operations continue, there is the continuing fear of damage to our equipment in the vicinity of such use. This fear was borne out at one operation where we conduct pit-to-plant hauls with a diesel locomotive and railroad hopper cars. Several enterprising individuals placed railroad ties across the track where the train emerges from an underpass. The resulting derailment not only destroyed several hopper cars but interrupted production for several days.



"In order to realize the ultimate potential from any reclamation plan, that plan should be developed before actual mining operations commence."

William E. Hole, Jr.

Another aspect of this same problem is demonstrated by the potential public liability consequences should there have been any fishermen or other recreationists in the path of the derailed train.

Another fear associated with the utilization of these properties before sand and gravel operations are completed is that public sentiment will cause a cessation of operations before all of the natural resources have been realized. In our case, such an effort emerged on a property which we were excavating and reclaiming in conformity with a plan for recreational development upon land owned by a municipality. Certain parties felt that a greater portion of the tract in question should be reserved for land-based recreational activities. Their arguments seemed to be persuasive so the city officials called in a recreational planner as a consultant. The issue was decided on the basis that in the part of the country in which this operation was located water areas were at an absolute premium, so where an opportunity existed to maximize such water areas, every advantage should be taken of it.

We discovered, much to our surprise, another factor affecting the development of public recreational areas. Most of the lands which we wish to operate upon are located in areas controlled by local zoning. In order to obtain the right from the zoning board to conduct such mining operations, it is necessary to convince those living in close proximity to the affected property that our reclamation and proposed after-use of the property will not depreciate the value of their property.

It seemed logical to us that to propose an after use for public recreational purposes was something that would have a lot of appeal. It, in fact, had just the opposite effect as we were confronted with the statement that "we don't want people coming from all over the county and dumping their empty beer cans around here." This rejoinder suggests the absolute necessity for a continuing clean-up program around such areas and adequate funding to see that this work is done.

One of the stated objectives of this program is to make suggestions which can help resolve physical problems of reclaiming surface mined lands for recreation purposes. It is pointed out in your program that considerable knowledge is available on reclamation technology. However, our experience has indicated that several points are of primary importance and they should therefore be emphasized here.

In order to realize the ultimate potential from any reclamation plan, that plan should be developed before actual mining operations commence. There are certain land forms adjoining lake areas which are better suited for a given end use than other land forms. For instance, if you are developing a residential area, a 100-to-150-foot lot depth along the perimeter of the lake creates a desirable condition. On the other hand, if you are planning a water-related recreation area, there is a need for a single sizeable block of land for use as a parking lot and a lesser depth of land around the lake could be tolerated. To the extent that the operator is aware of the final land configuration which is desired before mining commences, all overburden and waste materials can be placed, when originally handled, into the area of their final use in the finished reclamation plan. This exercise reduces the cost of reclamation to

the least amount possible and yet generates the optimum in potential land value.

When considering the necessary factors to accomplish the reclamation of worked-out sand and gravel pits, one should remember that such an operation generates a hole in the ground. Therefore, the reclamation process is simply the task of sloping the banks of the excavation so that they are suitable for the after-use intended and treating the pit bottom in a similar manner. If vegetation is desirable, a sufficient depth of soil, capable of supporting plant growth, must be placed over the exposed sand and gravel areas.

If the operation generates a body of water, the depth of that body of water is an important consideration. Our experience is that a depth of five feet is adequate to provide for the normal activities associated with lakes. As the water exceeds this required minimum, the greater the potential value of the lake. The primary problem with a water depth of less than five feet is the promotion of excessive weed growth. As the water depth increases, the lake will be capable of supporting additional types of fish life and other types of water oriented activities, such as scuba diving.

A problem which must be recognized with respect to water areas created by excavating below the natural water table is that the water level in the lake will fluctuate with the normal variations of the natural water table. The water table reaches its low point during the late fall and attains a high following the spring rains. So there is potentially an everchanging lake level with as much as a 5-foot total variation possible. For this reason we attempt to maintain a minimum lake depth of 10 feet.

There have been many thoughts with respect to the ideal slope for the banks of sand and gravel excavations. These efforts are futile, for the ideal slope for any reclamation project is a function of the after-use planned. Sand and gravel pits have a natural angle of recline of about 1½-to-1 (about 34% from horizontal). Although it is stable at this slope, it will tend to slide if a person walks on it. To maintain soil upon a sand and gravel slope, the slope should not exceed 2-to-1 (about 27% from horizontal) and a cover crop must be immediately established. The proper slope for any end use should lie within the range of 2-to-1 to 4-to-1 (about 14% from horizontal).

The question of the nature and depth of adequate top soiling is another one to which there are a variety of answers. Some reclamation regulations appear to distinguish between top soil and other overburden even though the other overburden may be soily in nature. These regulations generally require the separation of top soil from the other overburden when stripping and using just the top soil for cover material. In our operations, we have never made this separation, and yet we have no difficulty establishing adequate vegetative cover. So such a regulation seems to be superfluous. As to depth of soiling, we again have had excellent results with a minimum soil depth of four inches.

The Eastwood Park area at Dayton, Ohio, is a good example of our work. This project has been a joint venture between the City of Dayton and American Aggregates Corporation. The Water Department of the City of Dayton owned for future water development approximately 400 acres of gravel-bearing land located adjacent to about 250 acres of reserves held by American Aggregates Corporation. Originally discussions were held with the Water Department to ascertain whether some mutually advantageous plan might be worked out whereby American Aggregates Corporation could mine the gravel from the city property. Hydraulic experts concluded that if a series of lakes were created to which water from the adjacent Mad River could be introduced, there could be a considerable pump power saving to the city from wells located along the perimeter of the lakes. When the first excavation plan was developed, the terrific water recreation potential of the area was recognized, whereupon the City Recreational Department became a partner to the negotiations. The final agreement called for American Aggregates Corporation to deed its 250 acres to the City of Dayton, retaining the gravel rights thereon and receiving from the City of Dayton the right to remove sand and gravel from their land according to the developmental plan at a royalty less than the going rate in that area.

This project has served to promote three propositions, all of which are beneficial to the public interest. First, sand and gravel is available as near the market as possible, thereby reducing the cost to the ultimate consumer. The cost of pumping water for municipal use is reduced, again reducing the cost to the public. And a beautiful 650-acre water-related recreational park is being generated within 3 miles of the center of a major metropolitan area. □

THE ECONOMICS OF RECLAIMING SURFACE MINED LANDS

By Elburt F. Osborn
Director, Bureau of Mines

". . . Specialists in the Bureau of Mines are working with . . . the Bureau of Outdoor Recreation to develop a method for collecting meaningful cost data . . . for projects under our cooperative program to reclaim surface mined lands for recreational purposes."

Elburt F. Osborn.

So far, 1973 has been a banner year for surface mine reclamation, with the first national symposium devoted solely to the research and applied-technology aspects of surface mine reclamation as well as the first symposium on reclamation for a particular use.

Some of you may wonder why we surface mine at all. The question has been asked before, and by some undeniably sincere and obviously well informed people. Well, there are reasons, and most of them are pretty good ones.

A principal reason is that much of our coal, as well as sand and gravel, lies close to the surface where mining can be done at low cost.

An advantage of surface mining is that it is less hazardous for mine workers. In the case of coal mining, the fatality rate for workers in underground mines is about 10 times higher than it is for workers at surface mines. And, as you know, human costs are a major consideration for all of us.

Surface mining is preferable from a conservation standpoint. We get more of the resource when it is mined from the surface. Resource recovery for coal ranges as high as 98 percent (with a national average of about 80 percent) when coal is surface mined. For underground mining the average is only 57 percent.

From the reclamation standpoint, surface mining generally is preferable to underground mining. Usually where coal is strip mined, the surface can be reclaimed adequately for other uses without great cost. Underground mining introduces the hazard of surface subsidence many years later, a problem becoming more and more serious in this country.

Finally, some mineral deposits have physical characteristics that defy development by any means other than surface mining. This is true of much of our coal, most of our sand and gravel, and a good deal of our domestic copper.

Surface mining is practiced in all of our 50 States. In 1971 surface mines produced nearly four billion tons of material, accounting for 94 percent of our total "metal" and nonmetal production, which was valued at roughly $9.5 billion. Surface mines are the source of more than half of our coal production, and they supply more than 95 percent of our domestically mined bauxite, phosphate rock, clays and barite, copper ore, uranium, iron ore, and crushed stone.

That will give you some idea of what surface mining does **for** us. Now, let's take a quick look at what it has done **to** us.

For one thing, it has scarred millions of acres of our land. For another, the siltation and acid drainage from surface mines have polluted thousands of miles of streams and contaminated lakes and reservoirs. For still another, surface mining has detracted from the recreational potential of our land at the very time when that potential most needs to be realized.

The first national study of surface mining and its effects, conducted by the Department several years ago, brought out that by the beginning of 1965 some 3.2 million acres of our land had been disturbed by surface mining. Of the total, the Department reported, only one-third had been reclaimed to varying degrees by man and nature. The remaining two-thirds were still in need of reclamation. These figures have lately been updated by the Department of Agriculture's Soil Conservation Service. The SCS reports an additional 817,000 acres disturbed by surface mining between 1965 and 1971, bringing the total to four million acres. Of this new total, 1.8 million acres have been reclaimed and 2.2 million acres remain in need of reclamation. Of the 817,000 acres disturbed since 1965, about 338,000 acres were reclaimed.

Not only is the mined land itself adversely affected, but chemical and mechanical processes acting on the spoil areas and exposed mineralized zones frequently can prevent the productive use of adjacent lands. Then, there may also be stream pollution. The Interior Department study I mentioned earlier found that mineralization and siltation from surface mines polluted some 13,000 miles of streams, more than 280 natural lakes, and 168 impoundments and reservoirs. The Appalachian Regional Commission in 1969 placed at $3.5 million the added annual costs imposed by acid drainage on industrial users, municipal water supplies, navigation, and public facilities in Appalachian States. The Commission also indicated that less tangible costs of aesthetic degradation, diminished aquatic life, and decline of water-based recreation should be added to these costs.

Complicating this problem of environmental degradation is its timing. We have encountered it at a point in our development when environmental quality is urgently needed.

Less than 50 years ago, when the United States was doing its best to grow up into a world power, we had little time to worry about environmental quality. Many of the signs of pollution that we now deplore were then looked on as symbols of progress. A city shrouded in smoke was a city on the move. Air pollution was a hallmark of a dynamic, bustling industry. The giant shovels that peeled off layers of good, green earth to get at seams of coal or veins of metal gave us assurance that the wealth of our land was inexhaustible and our abilities to recover and use that wealth for progress were unlimited.

We were then too busy working to look for pleasant vistas. For most of us there was little time to hunt or fish or tour the countryside.

Then, all at once, we found that we had made it. By any material standard the world recognizes, we had been eminently successful. Most of our people could count themselves well off. We had arrived.

"The reclamation of abandoned surface-mined land clearly is not a cheap proposition. Nevertheless, the cost is not great when charged to the price of coal." Elburt F. Osborn.

And, almost overnight it seems, the puritan ethic vanished. We discovered that work was to be valued not just for itself, but also for the leisure and the enjoyments that it would buy. We began to look to Nature for recreation. Golf, once the rich man's sport, became a national pastime. Boating, hunting, fishing, skiing, suddenly caught the fancy of millions; and it became rapidly apparent that there were many more millions than anyone had dreamed. Because most of us are now crowded into cities, we find a special allure in the out-of-doors, and we are taking to it as never before in our history. And, at the very time that it is most precious to us, we see it depreciating before our eyes.

Naturally, we are determined to do something about it. That is attested to by the fact that in the past 10 years nearly a score of our States have adopted laws requiring some form of surface mine regulation. Many of these contain preplanning features that recognize the economic pragmatism of reclaiming surface mined lands for a higher use while the mine operator's equipment is still on the site. It is easy to see how integrating the reclamation work into the active mining cycle can help to minimize the costs.

Even so, there are costs. The Bureau of Mines

conducted a study of various reclamation methods in 1965 and developed cost data at the time. The actual costs developed in this study, which was conducted on abandoned mined land, ranged from $1,080 to $3,080 per acre for backfilling and grading. In terms of 1972 dollars these costs would now range from $1,521 to $4,334 for backfilling and grading, depending on whether complete backfilling and reduction of the highwall were accomplished.

Costs ranging from $912 to $22,428 per acre have been incurred in seven surface mine reclamation projects conducted by the Bureau of Mines and cooperating States under the authority of the Appalachian Regional Development Act. I hasten to add that these projects varied greatly in the amounts of reclamation and land improvement achieved. The projects included development of two school sites, an industrial park, and two recreational areas. Two were general environmental improvement projects. When the costs of special purpose school projects are deducted, the cost range becomes $1,618 to $2,932 per acre, depending on whether an impoundment for water-based recreation is included. The reclamation of abandoned surface-mined land clearly is not a cheap proposition. Nevertheless, the cost is not great when charged to the price of the coal. Depending on factors such as thickness of coal and depth, the general average cost of reclamation for all surface-mined coal is only about 15 cents per ton of coal mined.

The Bureau started a project last July on 126 acres of abandoned land in Lackawanna County, Pa. The land had been both deep mined and strip mined for coal and it is now owned by the county. Our objective in this project, which is still underway, is to demonstrate the feasibility of reclaiming mined lands to a condition suitable for future productive public use . . . in this case, outdoor recreation.

The reclamation cost under the first phase of a $300,000 contract was $2,390 per acre. Admittedly, this is high, but it includes backfilling strip pits as deep as 40 feet; grading for parking areas, access roads, and game courts; and installing ditches and culverts. Under the second phase of the project we will remove debris from a stream channel and seal it to keep water from seeping through it into abandoned underground mineworkings. We will also add 80,000 cubic yards of topsoil and seed it and plant it, and we will open an abandoned underground mine slope to determine whether the slope and part of the underground workings can be reconditioned for a proposed public tour attraction.

Installation of utilities, access roads, service buildings, and other facilities by the Lackawanna County Department of Parks, Recreation, and Tourism will create a truly multiple-use park. Areas will be provided for picnicking, camping, nature trails, game courts, sports fields, a reforestation demonstration area, and other uses. Later, the Pennsylvania Historical Society hopes to arrange for a museum to depict the history of anthracite mining in the Keystone State.

I think this project exemplifies the very best in cooperative interagency action. The National Park Service, the Bureau of Sport Fisheries and Wildlife, the Forst Service and the Pennsylvania Department of Environmental Resources have joined with Lackawanna County authorities and the Bureau of Mines to get this important job done. The completed project will reflect a variety of talents and experience all directed to a worthwhile goal.

From what I've said so far, you have probably gathered that we have some information on the economics of reclaiming surface mined lands. You have doubtless also gathered that we don't know as much about these costs as we would like to, and we know still less about the possibilities of reducing them. I can assure you, however, that we are working on the problem.

Right now, specialists in the Bureau of Mines are working with their counterparts in the Bureau of Outdoor Recreation to develop a method for collecting meaningful cost data on the approved and proposed sites for projects under our cooperative program to reclaim surface mined lands for recreational purposes. Already, we have jointly investigated conditions and determined the recreational potential at more than 50 sites throughout the United States. Cost determination is an essential part of this effort, not only for us but also for State and local governments and for other organizations who want to undertake or to help advance similar reclamation programs.

We welcome your participation in the four discussion sessions that will cover topics of concern to the future of this program. We want your ideas, your opinions, and your support, because it will take our combined efforts to make the program the success that we know it can be.

DEVELOPING A MECHANISM FOR INVENTORYING SURFACE MINED LANDS WITH OUTDOOR RECREATION POTENTIAL

Session Chairman A. Heaton Underhill
Assistant Director for State Programs
Bureau of Outdoor Recreation

One point raised in the Session One discussions is abundantly clear and came out loud and strong. There is no single organization that can do the job of inventorying, identifying, and maintaining a record of surface mined lands that are suitable for recreation. The concensus, however, was that the States should assume the pivotal role, and that the Governor's Office probably is the initial contact and should provide the coordinating mechanism for an inventory of this kind.

One of the suggestions was that following this conference the Secretary of the Interior should write to the Governors asking them to take the lead in a national inventory of surface mined land with potential for outdoor recreation uses. The Secretary can call this conference to the Governors' attention and emphasize some of its recommendations. He can point out that there are a number of Federal agencies involved in the inventorying process and that the Rural Development Act provides for a land inventory and monitoring program. The current budget request is for some $8 million available for a natural resources inventory over a period of 5 years. The report is due for issuance in 5 years. The States occupy a pivotal role in starting and maintaining an inventory of surface mined lands with outdoor recreation potential.

Our discussion group pointed out that we already have many of the techniques needed. Included among these are photography and remote sensing imagery, methods of studying water tables, soil types, sophisticated mapping, etc.

Our group proposed that the Bureau of Outdoor Recreation in cooperation with the Bureau of Mines, the U.S. Forest Service, various research organizations, and others should develop definitions and classifications. These will allow a uniformity in the inventory.

The group's feeling was that the Bureau of Outdoor Recreation should attempt to coordinate the Federal information which should be included in such an inventory on a state-by-state basis.

Obviously, this is part of land-use planning and it should be coordinated with land-use planning as it is developing. Such planning is an ongoing process. While we should base management programs on the best information available, this information should be continuously refined and

updated. Data setting forth location and development of surface mined land and identification of its recreation potential should be included in any land use plans.

Any inventory undertaken should be related to pending legislation. Not only do we have the land-use planning legislation pending, but also we have several complementary pieces of proposed or recently enacted legislation, including coastal zone management, power plant siting, surface mined land reclamation, and others. All are segments of land-use planning to which the inventory should relate.

The group felt that we could not identify or inventory just surface mined land with a recreation potential. We will have to inventory all surface mined land both past and potential and then identify that which has a recreation potential. In so doing we must give consideration to adjacent lands and to such things as recreation demand, recreation need, population mobility, etc.

In this process we need to identify the vulnerable areas first, especially the areas that are related to the inner cities, the areas that are in the urban section. Time and again we rediscover the fact that the greatest problems are where people are. Certainly we need to identify surface mined land with recreation potential which lies in this critical zone. With these areas vulnerable to other uses, yet needed for open space, we cannot wait until an inventory is completed. Action must proceed immediately.

We need to consider in the inventory and in the planning process the possibilities of trade-offs with private mine owners who may forego the use of certain lands and accept in their place the use of other lands that better fit the total needs of society, trade-offs providing for developing new housing sites on surface mined areas above flood plains thus allowing flood plain use for recreation purposes. Mining higher up the slope can be done with the idea of providing building sites as one end product. This boils down to land-use planning before land-use starts.

In our discussion of ways to pay for needed reclamation for recreation, we surfaced but did not endorse the concept of using a one percent energy tax. The argument was advanced that it would be appropriate to rehabilitate land despoiled in the process of providing energy for society's needs with funds provided by the energy users.

Finally, the panel urged that the long-awaited Bureau of Outdoor Recreation Nationwide Outdoor Recreation Plan recognize the potential for recreation on surface mined lands and address itself to ways that such lands might be utilized.

Major points made by the Discussion Group include:

1. No one organization can adequately inventory surface mined land for outdoor recreation uses; the necessary machinery must reflect diverse physical, social, political, and economic interests.

   An adequate inventory of surface mined land for outdoor recreation potential is a complex undertaking. No single organization possesses the scope that would take into account all the various concerns that such an inventory should include.

2. The focal point of an inventory of surface mined land for outdoor recreation purposes should be the office of the Governor in each State.

   The Governor's Office offers broader resources than any other single point for coordinating a State-by-State inventory. It can bring together all appropriate State agencies. It can provide a meeting ground for inputs from counties, special districts, and other official units of the State or its political subdivisions. It can channel into the process of inventory materials from regional planning staffs. It provides the proper avenue for the Federal Government to make appropriate data and assistance available. It offers a recognized and effective point of contact for industry, conservation and related organizations, and other entities. Governors can and will delegate working responsibilities for inventories, but the authority nevertheless will derive from them.

3. Considerable technology for physical inventory exists, such as high level infra-red photography, but on-site inventories are frequently needed in addition, particularly to expose developments such as proposed working of second and third seams of coal.
   Increasing energy needs indicate increased working of second and third seams of coal; until work actually gets underway, aerial surveys cannot detect such activity.

4. Inventory procedures need uniform classification and definitions.

Considerable inventory work exists, but is not generally comparable State-to-State or region-to-region, since uniform classifications and definitions were not used by the various jurisdictions compiling the inventories. The Bureau of Outdoor Recreation and the Bureau of Mines could assist in gaining State agreement to adopt uniform classifications and definitions.

5. The Bureau of Outdoor Recreation should coordinate Federal inputs into State inventory of surface mined land for recreation purposes.

   The Bureau of Outdoor Recreation, through its continuing experience with the States in administering the Land and Water Conservation Fund, brings to the inventory an effective expertise. The Bureau of Outdoor Recreation has an experience that qualifies it to understand State needs for various Federal materials and procedures for obtaining such materials from Federal agencies.

   The Bureau of Outdoor Recreation also is an effective mechanism for channeling appropriate information to the States from regional and national organizations, such as the mining industry, recreation, and related conservation groups.

6. A surface-mined land inventory for outdoor recreation must recognize that such an inventory is integral to the comprehensive land use planning process.

   Comprehensive land use planning must include a diversity of information, including an inventory of surface mined land potential for outdoor recreation. The inventory would benefit from a pre-existing comprehensive land use plan, but such a plan will evolve over a considerable period and the mined land inventory should not await its full emergence. Comprehensive land use planning may provide the money which will allow full State and local establishment of planning, recreation, and other needed commissions, thus eliminating a serious detriment to both inventorying and comprehensive land use planning.

7. Proposed Federal Mining Reclamation legislation pending before the Congress is basically land use planning for a stated purpose.

   Like the Power Plant Siting Act, proposed Federal Mining Reclamation legislation is a part of comprehensive land use planning.

Poinciana Park in Miami, Fla., includes a Land and Water Conservation Fund grant addition of a rock pit mining area across the street from family housing units. Bureau of Outdoor Recreation photo.

"We no longer can let the exhaust of our civilization lie unattended across the land."

Secretary of the Interior Morton.

Recreation officials in Washington view the abandoned gravel pit they intend to reclaim as Sacajawea Community Park in King County, Wash. Photo from Bureau of Outdoor Recreation Northwest Region.

Its implementation will require an adequate inventory of surface mined land, including that suitable for outdoor recreation.

8. An inventory of surface mined land to determine outdoor recreation potential should recognize present and future social, political, economic, and legal effects, as well as physical effects.

   Costs of not reclaiming surface mined land for recreation should be considered as well as costs of reclaiming it. Such costs are both social and economic. Political ramifications on existing and needed governmental structures, local, State, and Federal, require inventory and analysis. Effects of present laws and effects of new laws on the fabric of industry and society warrant inventory and analysis. Considerable difference of opinion exists as to whether non-physical elements of a surface mined land inventory should be undertaken.

9. Recreation use of surface mined land often requires a dual-purpose justification.

   Cost of establishing recreation areas on surface mined land often cannot be justified when equivalent facilities can be built on non-mined land at less cost. Justification often rests in the combined values resulting from reclaiming the surface mined land and making available needed recreation opportunities.

10. Inventories of surface mined land for recreation purposes require relation to other kinds of inventories.

    An inventory of a surface mined area needs to take into account demographic conditions and projections, for example, else determination of a recreation potential based on public demand becomes difficult. Population figures, distance from Standard Metropolitan Statistical Areas, kind and size of other recreation areas nearby, and similar information are essential to the recreation inventorying process.

11. Recreation demand inventories should be related to inventory and development of surface mined land for outdoor recreation.

    Heaviest recreation demand is in and near the larger population concentrations; expenditures from the Land and Water Conservation Fund and from other Federal and State sources for reclamation for recreation should focus on urban needs.

12. Inventories must recognize possibility of trade-offs of several types.

    Options to recreation development of a given surface mined land area must be considered. For example, desirability of moving a village from a flood plain in the valley to a hillside surface mined area is a necessary ingredient of an inventory, together with dedication of the vacated flood plain land to recreation uses. Similarly, inventories should evaluate trade-offs involved in deferring recreation or other development pending extraction of sand and gravel or other materials whose extraction will be foreclosed by the development when it occurs.

13. Absence of comprehensive planning frequently means that outdoor recreation loses out when other options are available to a political entity: to highway needs, residential development, industrial development, and other requirements of our Twentieth Century Society.

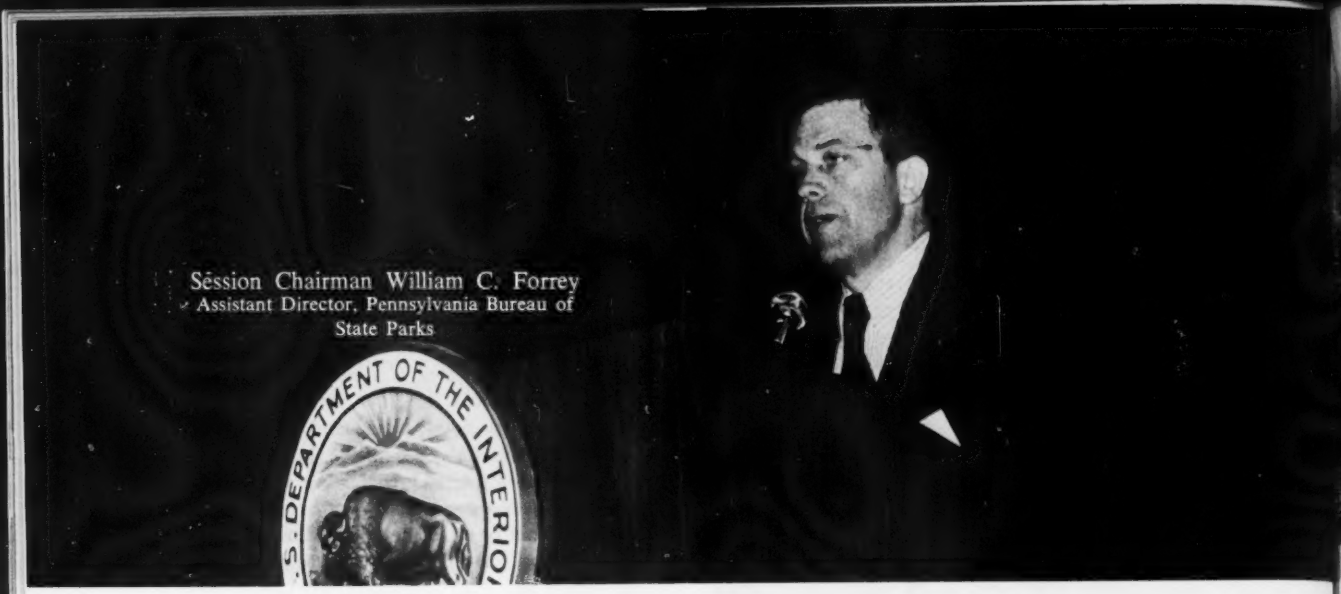
    Single purpose decisions at the city, county, and State levels made without the advantage of comprehensive planning often make tax-producing uses of available areas seem to pose an attraction which may not be valid over the long haul. As stated previously, comprehensive planning cannot take place adequately without adequate inventories of resources, including surface mined land suitable for outdoor recreation uses.

14. A 1-percent national energy tax similar to present telephone taxes could provide adequate funds for reclamation of the surface mined lands which an inventory would reveal.

    Such a tax on the $28 billion annual electric energy bill would suffice to reclaim existing surface mined land within 10 years. The tax would be paid by the consumer, who would be the chief beneficiary of the reclamation. Such a tax would be counter to many present efforts to eliminate excise taxes.

15. The Bureau of Outdoor Recreation Nationwide Outdoor Recreation Plan should address the recreation potential of surface mined land.

    The Nationwide Plan offers opportunity to delineate Federal recreation policy insofar as surface mined land is concerned. The plan will direct its attention more to the Federal role than to specific State and local needs and opportunities.



Session Chairman William C. Forrey
Assistant Director, Pennsylvania Bureau of State Parks

ESTABLISHING PRIORITIES FOR RECLAMATION OF SURFACE MINED LANDS FOR OUTDOOR RECREATION

Of more than 2 million existing acres of unreclaimed surface mined land, based on today's standards, and of the approximately 210,000 acres being mined annually in the United States, only a fraction is actually suitable for outdoor recreation development.

Indications are that responsible officials must give very careful consideration in utilizing these areas for outdoor recreation and related educational purposes, since surface mined areas sometimes provide unique opportunities for recreation sites. Cooperative preplanning of surface-mined areas can greatly improve their recreation potential. Surface mining is an interim phase of land use. In certain cases, re-mining of undeveloped lands can serve the best interests of the public by providing proper reclamation techniques during the second mining operation.

Sand and gravel areas are, in many cases, located close to urban areas and, therefore, lend themselves to high density park developments.

Mined lands can serve a number of recreational uses other than the traditional recreation activities, such as hunting, fishing, swimming, camping, and picnicking. They can also be used for off-road vehicle trails, shooting facilities, archery, rock climbing, and other similar activities.

The Statewide Comprehensive Outdoor Recreation Plan for each State attempts to identify outdoor recreation opportunities in the areas ot greatest demand. In utilizing these plans to locate specific areas of increasing demand for outdoor recreation, the number one priority is to meet the needs of the American public.

There was unanimous agreement that there can be some advantages to be gained by utilizing certain areas that have been disturbed by surface mining.

After lengthy discussion of the factors involved, those participating in Discussion Group 2 arrived at the following listing of priorities to be considered in determining sites for outdoor recreation utilizing surface mined land. They are discussed in descending order of priority.

Priority One: Urban recreation needs. Most major studies over the past 20 years have underscored the need for lands for outdoor recreattion; that is, lands where the people are. Public need and proximity to population are prime considerations. These close-in mined lands are also areas where acceleration of surrounding land prices allow much greater land reclamation costs. Those faced with the necessity for determining need, demand, and recreation deficits should consult the forthcoming Nationwide Outdor Recreation Plan, Statewide Comprehensive Outdoor Recreation Plans, regional plans, and local plans.

Priority Two: Immediate or long-term improve-

Kellogg, Idaho, will recycle this mine tailings site for recreation use. The school park is one of the Bureau of Outdoor Recreation reclamation-for-recreation demonstration projects. Bureau of Outdoor Recreation Northwest Region photo.

ment of environmental quality. Public reaction can be expected to be favorable and supportive where there are esthetic and educational gains. Also, onsite and offsite gains, such as erosion control, water quality, hazard reduction, improved fish and wildlife benefits, and so on have great importance.

Priority Three: Capabilities of the site to provide outdoor recreation. This means its development costs, suitability for the needed recreation opportunities, and capability to serve the desired use of the site.

Priority Four: Areas of all types in various locations that with encouragement, favorable zoning, and the right governmental climate, can be converted to profitable private commercial recreation to meet public needs.

Many of the marginal areas not feasible for public parks or for profitable private commercial development may serve large memberships as nonprofit club or organization lands for recreation use.

Priority Five: Sites suitable for water development. Water areas or those conducive to creation of water areas, particularly in the west and midwest where such resources are in short supply.

Water-producing sand and gravel sites represent a small percentage of the total acreage. However, because economics require short transport of the product, they lie close to the population centers. Because they usually are small, they should be considered carefully by local governments for high density recreational development.

Priority Six: Opportunities to obtain large tracts of land. There is a premium on large tracts in areas where ownership and uses have been fragmented to the point where park and recreation area size plots are practically non-existent.

Priority Seven: Special use areas. These include off-road vehicle areas, ski areas, shooting ranges, and others to which surface mined land topography, spoil banks, and other factors lend themselves to the necessary reshaping.

Priority Eight: Areas where residual mineral and fossil fuel deposits present now are feasible for re-mining according to new technological methods. Pre-planning cooperation by public and mining interests can use the re-mining to create desirable recreation developments.

Priority Nine: Rural lands needing only low-cost environmental quality treatment such as erosion control or acid drainage elimination so that they could be retained for the 25 or more years required for natural recovery. Metropolitan limits will advance to overrun many rural lands in the intervening quarter century. In this way, environmental quality would be near-term both onsite and offsite while providing long range planning for eventual outdoor recreation areas.

The aforementioned list may serve as a guide in determining whether or not specific areas that have been surface mined should be developed for outdoor recreation uses. Regarding public agencies, the various planning studies, such as the Statewide Comprehensive Outdoor Recreation Plans, county plans, local plans, etc., will identify areas of need in terms of demand. Based on these plans, the priorities listed here will assist in determining the ultimate decision relative to the choice of sites for development.

In regard to private investors utilizing these lands disturbed by surface mining, the order of priorities may assist in making decisions concerning outdoor recreation developments.

A specific measurement scale is considered to be a realizable goal, but it was not possible to develop one in such a short time.

For the future, it is recommended that public planning agencies and outdoor recreation developers in the private sector utilize surface mined areas wherever possible to enhance the environment while serving the enormous outdoor recreation appetite of the American people.

DETERMINING SOURCES OF ASSISTANCE TO HELP RECLAIM SURFACE-MINED LANDS

Session Chairman James F. Boyer, Jr.
Manager of Environmental Control
Bituminous Coal Research, Inc.

Discussion Session 3 identified four main types of assistance available to help in the reclamation of mined lands. They are: Published and non-published information regarding practical assistance; financial aid; technical assistance available from government, mining companies, the academic community, conservation groups and consulting firms; and manpower and equipment.

Our task of identifying the specific assistance was greatly simplified since the Bureau of Outdoor Recreation has already surveyed the Federal and private sources and compiled the results in a draft document, "Sources of Assistance in Reclaiming Surface-Mined Land for Outdoor Recreation." This publication was distributed to all conference registrants. The conferees in this discussion session reviewed the draft publication to determine how it might be completed and its usefulness to outdoor recreation reclaimers enhanced.

Our conclusions and recommendations concerning the publication are as follows:

1. **Foreword:** First, we suggest that it be rewritten to assure a broad description of the types of assistance that are available and the means for securing such assistance. It is particularly important that the foreword should indicate that lead times are required for securing assistance from most agencies. Equally important, the local agency that should be contacted for securing any type of assistance should be indicated. The point was emphasized and reemphasized in the session that reclamation projects originate on the local level, and that local agency people—county agents—are involved in the program. The people who use this publication should be made aware that this is where they start to secure assistance.

2. **Federal Assistance:** We felt that the initial survey on the Federal level did not indicate how much, or how little, assistance is really available. The interactions between Federal and local agencies should also be described in the publication. It should include more complete information and the participants of Group 3 indicated they would welcome the opportunity to review and rewrite those sections pertaining to their agencies or companies. We also suggest omission of statutory language from the final draft.

3. **State and Local Assistance:** Only Pennsylvania's reclamation fund was mentioned and those of us who are familiar with it did not feel that the description properly identified how the fund is used and what purpose it serves. This section should be expanded to include information on availability of other such state funds.

   Table Two in the section under state assistance is a summary of surface mining and mined-land reclamation laws. We found the table interesting but of no real assistance in reclaiming abandoned mine sites. We suggest that it be replaced with one that specifically identifies available State and local assistance.

   Completely omitted from this portion of the report are references to the data, technical expertise, and research programs available through universities and other academic institutions.

   We suggest most of this information concerning State and local participation could best be generated through the upcoming regional conferences and the Bureau of Outdoor Recreation should state that as one of the objectives.

4. **Private Assistance:** The major contribution of the mining industry is to include preparation for reclamation as part of active mining operations. Pre-planning is essential to any good reclamation operation—including reclamation for recreation—and local and State groups should make their wishes and assistance known before mining actually begins.

   There are, however, several constraints to re-

claiming for recreation use on a widespread basis. First, the reclamation laws are not sufficiently flexible to permit reclamation for recreation. For instance, in many States the spoil banks have to be graded to a gently sloping degree and such grading reduces the effective shoreline for lakes that could be created on mined land. An example is a mine site in Indiana where such a shoreline would be reduced from five miles tc one mile.

It was also brought out during the session that some States prohibit the impoundment of acid water, although it has been repeatedly shown that in time acid water quite often will become alkaline and will support an adequate fish population. During this discussion, it was also pointed out that using a lake for fishing is not always compatible with boating and swimming; a lake with pH of 5 is often better for swimming and boating than a lake that has a pH of 7 since the higher pH encourages algae growth. States should encourage recreation areas on mined land by adopting reclamation legislation based on a multiple land use concept.

Second, the question of liability in the event of injury greatly reduces the amount of mined land in private ownership that is available for public use. If this question can be resolved, many acres of reclaimed mined land that are already suitable for recreational uses would become available for public use. The Bureau of Outdoor Recreation, with the Council of State Governments, is therefore encouraged to investigate the possibility of alleviating this problem.

This area near Huntsville, Mo., was strip mined in 1944, revegetated, and turned into a private development in 1947. Peabody Coal Company photo.

A third restraint upon developing mined land for recreation occurs because this type of reclamation is not immediately esthetically appealing. It takes longer to grow trees than it does grass and the steeper slopes that are necessary for impounding water are initially not as attractive as gentle slopes. Neither present reclamation laws nor public opinion encourage this end use.

5. **Manpower Resources:** There are several Federal assistance programs through which manpower for reclamation might be available at minimum cost. These include the Youth Conservation Corps and the Job Corps Centers. Members of the session also suggested that the National Guard has both equipment and operators which might be used. This type of Federal assistance is not now mentioned in the BOR report.

   On the local level there are numerous volunteer organizations such as the Boy Scouts and conservation groups that may be able to supply the labor necessary for jobs such as tree planting. Although local assistance will vary from place to place, the publication should allude to its availability.

6. **Reference Material:** In addition to gearing the publication to the potential mined land developer, our discussion group recommends that a series of case histories should also be included. The purpose of the case histories should be first to stimulate the use of mined land by showing the end product that can be achieved, and second, to indicate the type of assistance that is available.

   In reviewing the data that is available, Discussion Group 3 concluded that sufficient technology has been developed to reclaim most areas and that many of these sources are already included in the BOR report. However, there are some non-relevant materials in the report, and BOR should review all such materials before approving their inclusion in the publication.

   Finally, it is the consensus that land reclamation technology is still expanding and that existing technology has not been adequately recorded in printed form. Our final recommendation, then, is that land reclamation advisory committees, composed of leading experts in government and private industry, should be established on a regional level to help the Bureau of Outdoor Recreation to achieve maximum use of mined land for recreational purposes.

SYSTEM FOR COLLECTING AND DISTRIBUTING TECHNOLOGICAL DATA ON RECLAIMING SURFACE MINED LANDS FOR PUBLIC RECREATION

Session Chairman Thomas A. Henrie
Deputy Director, Mineral Resources and Environmental Quality
Bureau of Mines

The growing need for recreational opportunities to meet the physical and physiological demands of our expanding population accelerated by increasing urbanization underscores the paramount importance of wise land-use planning. An important part of this planning is for public recreational opportunities for which recycling of land abandoned by other uses such as mining should be considered. Creative thinking and careful planning result in the development of public recreation areas from orphan-mined lands and the systematic reclamation of active mining areas.

Effective rehabilitation of mined land will require a fund of technical information essential to the evaluation of many complex environmental problems and development of appropriate solutions and designs. To this end, the objective of Discussion Group 4 was to recommend a system to collect and distribute technological data on reclamation to facilitate planning of public recreation opportunities.

Discussion Session 4 readily saw that many of the considerations encompassed responsibilities assigned to other discussion groups. This particularly included the inventory and reclamation priority responsibilities of groups 1 and 2, for one of the group's first conclusions was that the use of mined land for recreation is consistent with total land-use planning. This idea is no doubt foreign to the thinking of many recreationists in this country, which makes the need for disseminating relevant reclamation planning information all that more important.

Once a coal strip mine, Fairgrounds Park near DuQuoin, Ill., is now the site of the Kentucky Derby harness racing, the Hambletonian. It was reclaimed voluntarily by the coal producer. National Coal Association photo.

The need for recreation planning information is further emphasized by increased urbanization which has placed a premium on land areas versus land-use. Providing sufficient outdoor recreation opportunities will require that each acre be used to its fullest extent. With sound planning made possible through a fund of technical information, the use-space challenge can be met. The difference that planning can make is well illustrated by the design of the park that I frequently visit not far from my home in Maryland. Although small in area, the park contains 10 miles of trails. Yet the trails are so laid out and screened that one can find solitude even though only a few feet from other hikers.

To logically evaluate the use of mined lands for recreation purposes, there is a need to: (1) Know the location, extent, and status of mined lands; (2) evaluate the physical potential mined lands possess for conversion to recreation areas; and (3) formulate programs for systematic reclamation of such lands.

Essential to the evaluation of these points is the development of a system to collect, analyze, and distribute technical information on mined land reclamation as it relates to recreation development. Inputs to such a system would consist of data on proven rehabilitation and restoration practices, reclamation costs, success or failure of completed projects, potential end-uses for mined lands, technical aspects of topography, geology, climate, soil types, and demography, and ultimately data on the several points, themselves.

To be usable, data must be collected and filed in a systematic, retrievable manner. Whether such a data bank consists of a file drawer or a computerized system similar to the Bureau of Mines FINDER SYSTEM for storage and selective retrieval of a wide range of reference materials, is largely a matter dependent on anticipated use and detail exercised in accumulating information in the field.

The Bureau of Mines and the Bureau of Outdoor Recreation have already begun work on design of a data acquisition form for compiling reclamation information on pilot projects underway. The group has discussed and recommended changes to an outline of possible information to be gathered on these forms. The revised portion of the outline is appended to this statement.

As the group worked on the outline, it became evident that we have and can easily gather a mountain of engineering data. The problem, however, is to develop a method of translating the data into a form that is readily understood by practitioners in surface mining, and reclamation planners and decision-makers not specifically trained in recreation design. The issue is further complicated by the heretofore largely unappreciated need to make an engineering work not just an end in itself, but a part of the local ecosystem appreciative of climatic, topographic, and other environmental conditions.

No collection of data is useful, however, unless it can be placed in the hands of those who can use it beneficially. Likewise, the information needs of any given user(s) are liable to be quite varied and subject to frequent change. The problem of data dissemination therefore becomes 3-fold: There is a need to let concerned parties know of the existence of reclamation data, its scope, and the manner in which detailed

information can be obtained. There is also the need to show the data can be used to plan reclamation projects or to assist pre-planning of mining operations. And not least of all, there is a need to show the advantages of recycling mined land for recreation use through successful cost-benefit examples.

The group suggested that data dissemination problems could be met through development of a user's planning guide. Such a document would spell out the answers to the aforementioned needs and suggest ways to identify the best combinations of money, land-use, and resources to achieve overall recreation-reclamation objectives. The document should strive to create local interest and participation by highlighting several examples of successful reclamation projects to illustrate the manner in which available technical information can be used. The document should be made available through normal public information channels of the Interior Department.

To enhance dissemination of technical data on various reclamation projects compiled by the two Bureaus, the full scope of individual project accomplishments should routinely go to Congressional members and committees, other Federal agencies, State governments, chambers of commerce, and the mineral industry. Articles in professional publications and distribution of reports to various Federal depository libraries

Hand in hand with collection and dissemination of information on reclamation, goes the need for guidance and assistance to the envisioned nationwide program. In this respect, the group recommended that the Bureau of Outdoor Recreation establish basic reclamation planning guidelines and designate sources of available governmental and private financial and technical assistance. This could be accomplished by revision and compilation of Bureau publications similar to the draft document entitled, "Sources of Assistance in Reclaiming Surface Mined Lands for Outdoor Recreation."

The group also felt that there is a pressing need for research specifically addressed to mined land reclamation. The results of such past research, private, industry, or governmental, should be solicited and reviewed by the two Bureaus and brought together in a series of publications directed toward specific geographic regions. New research data should be reported in a continuing series of technical progress reports.

Another priority recommendation was that the Bureau of Outdoor Recreation and the Bureau of Mines put out a public relations report to inform people on the possibilities of utilizing mined lands. It should not be overly technical and should emphasize how people can identify areas and work with the mining industry. The group felt that there is a lack of credibility between the public and the mineral industry. A good public relations report would do much to allay these fears and lack of credibility.

Finally, the group felt that we need a great deal of local effort. Representatives from the mineral industry and the States indicated that the question of mined land reclamation has saddled them with a big new problem for which they could use all the help available. To make the most of this golden opportunity to shape vast acreages of otherwise disturbed land to meet specific public needs, we must strive to get reclamation information to the States and industry as quickly and concisely as possible.

This conference and the publication of the proceedings will go a long way toward helping to create public awareness of potential recreational values of mined lands as well as what individuals can do to obtain specific information.

DATA NEEDS*

IX. Evaluation of Need and/or Desirability of Reclamation for Recreation
- A. Appropriate uses
  - 1. Recreation
    - a. Types
  - 2. Other
- B. Life Expectancy for recreation
- C. Method of land acquisition
  - 1. Gift
    - a. Valuation for tax purpose
  - 2. Purchase
    - a. Cost
  - 3. Condemnation
    - a. Cost—court cost and land costs
- D. Cost of reclamation for recreation
- E. Time for recreation development
- F. Reclamation and methods required to develop for recreational uses
  - 1. Amount
  - 2. Methods used
- G. Needs served by recreation facility
  - 1. Local
  - 2. Regional
  - 3. National
- H. Months per year of recreational use
- I. Uniqueness of the area
  - 1. Local
  - 2. Regional
  - 3. National

** The complete outline is available upon request to the Bureau of Outdoor Recreation or the Bureau of Mines, Department of the Interior, Washington, D. C. 20240.*

Secretary of the Interior Rogers C. B. Morton gives the concluding address at the National Conference on Surface Mined Lands for Outdoor Recreation. The site was a luncheon at the National Press Club.

IN CONCLUSION

By Rogers C. B. Morton
Secretary of the Interior

Co-sponsors of this conference, participants, ladies and gentlemen of the press, it is a thrill for me to be here in the closing hour of this conference to participate in the most noble cause you can possibly get into—reshaping and remaking the environment.

We are not just executors of the estate of the generation that preceded us. We are now writing the will for the disposition of assets we will leave for the next generation.

We are delighted at the new sense of awareness that has started in this country. This awareness has to precede the development of technology; it has to precede any action which we take jointly or as individuals.

We are delighted to know that this awareness is beginning. I can see it in my mail. I can see it in the faces of the people with whom I talk as I go about the country. I can see it in expressions of people who are dedicated to getting something either preserved, reclaimed, restored, or set aside. There is a feeling, and we must stay with it, like the skilled and trained surfboarder who must get on his wave and stay with it. Otherwise, we will tumble in the surf, the wave will go on.

The first experience that I had with the proposition we are involved in today occurred a good many years ago, and I will not tell you how long!

I was able to climb a fence that none of my colleagues could climb. I could get a grip on the top bar; nobody else could do it. I could climb over the fence into a privately operated quarry pool in Jefferson County, Ky., and swim at night without paying the 25-cent admission fee, without benefit of a lifeguard . . . and usually anything else. This was a limestone quarry, typical of the thousands that exist across this land, some of them no longer being quarried. I am amazed at how many of them seem to hold good clear water.

The pool was an example of entrepreneurism taking a depleted resource and coming up with a new use.

I think the fact that so many people sponsored this conference and came to it is a sign of the kind of positive pressure that is being put on all of us. I asked Jim Watt of the Bureau of Outdoor Recreation at the beginning of this conference how many people he was going to

"Other nations of the world have found that they cannot live in this atmosphere of abandonment, in this atmosphere of just letting a piece of land or a fine old building go."
Secretary of the Interior Morton.

have; he said about a hundred. He ends up having 180.

The work we have to do in developing a total land use plan has been well articulated, well laid out. You know the history of land use legislation. We have proposed it to the Congress in each of the past 4 years. This year we have gone forward with it again. It looks as though after everybody has taken a shot at it, we are going to have some good land use legislation which will institutionalize the States' and local governments' responsibility and provide a bridge between the Federal responsibility and the local input.

That is the way legislation is usually born. This, I think, will be sort of the wrapping around the whole thing, the machinery through which we will approach development of secondary or recycled uses for mined land. The same will apply to recycled uses for other land which has expired as far as its use in the first instance is concerned.

Before I talk about the excitement of recreation involving reclamation, let me say that this also is an opportunity for us to study other uses of mined land—reforestation, future industrial and housing areas, and all the rest.

Mr. Dwight Rettie of the National Recreation and Park Association and I were talking at lunch and he said that an interesting thing about Peking is that the central park there is a thousand years old. Well, this is interesting. I think there are at least two important characteristics of the Chinese from which we can learn: One is their infinite patience, and the other, the way they project themselves into the future. They look beyond their own physical lives on earth. This is something we have to start doing. We are not looking far enough into the future to guarantee that what we leave will be better than what we found. I do not think it is fun to live unless we live under that ethic and under those circumstances.

The fact is that the Bureau of Outdoor Recreation, along with the Bureau of Mines, the United States Forest Service, and other agencies of the Government, has begun to put together a program that will develop the necessary technology. The program is motivated by an awareness of the new environmental ethic. We hope we can proceed into the action phases through better land use plans, land use organizations, and land use planning. The fact that we are attempting this ought to breed a sense of excitement across the country.

Here, we are beginning to do these things. Sure, a lot of Pennsylvania, a lot of my native Kentucky, a lot of West Virginia, a lot of other States in the Union—in fact, almost all—have some mining blight of which they are not proud. The interesting thing about it is that now we are not taking the attitude that it is hopeless, that we have to stop all mineral extraction. We do not say that we can have no more cement because we are not going to permit any more sand and gravel to be quarried or that we can have no more heat because we are not going to permit any more coal to be mined. I think we have passed through that. That was sort of a fog on our thinking horizon and we have come through it.

Now what we are saying is that we have to achieve a balance; that the challenge of mining has to be equalled by the challenge of reclamation.

I am sure that the coal miners here, Carl Bagge of the National Coal Association and the Peabody Coal Company people, feel as strongly as I do that they have plenty of time during the course of a mining venture to think in terms of what the final end use of that land is going to be.

With our modern technology there is no reason we cannot determine how long a strip mine area is going to last at such and such a rate of production. Then we can say to ourselves with reasonable confidence: I think that this mine is going to burn out or this mine is going to be completely depleted in the year of nineteen hundred X. If, for example, it is 1985, why not begin setting the wheels in motion with the land planners, the environmentalists, and with all of the people who should be concerned in this second use for the land about 1980.

Dr. Elburt F. Osborn of the Bureau of Mines, in a recent memorandum to me, talked about the total cost of reclamation in terms of the value of the resource itself. I am not going to put him on the hook because the cost varies from one location to another. But it averages out at something in the neighborhood of 10 or 15 or 20 cents for $10 a ton value. Now it seems to me that this lies within reasonable economic parameters.

It is with this kind of reclamation attitude that we should proceed. If we do not, we are going to be in rough shape. If we do it, we are going to develop a sense of excitement and a sense of involvement among participants and users. This will be true whether they are, in the case of reclaimed land for recreation, the enjoyer of the land or the facility itself; or in the case of land that has been reforested, the generation that will be able to harvest that land on a sustained yield basis, adding to the gross national product.

I believe that Peabody Coal Company's donation of the thousand acres of surface mined coal land at Columbia, Mo., for conversion to a State park is still another example of what spirited, visionary industry and creative government can produce. I want to congratulate them for this. I think it is the way to go. And if I still were on the Ways and Means Committee, I would be apt to point out that with respect to taxes, it probably did not hurt them a bit!

With the assistance of a matching grant from the Land and Water Conservation Fund, we are putting government and industry together into this $102,000 project. Think of it! We are going to create, in central Missouri, a park opportunity on land that would otherwise have been an eyesore or something that would have been of little value to the people.

There are an awful lot of dimensions to this kind of project. This effort cost the Federal Government very, very little, when you consider our basic standards for spending. BOR has funded $2.5 million for this work of reclaiming surface mined land for recreation in selected areas across the land. The payoff for that is spectacular. You cannot even warm up a space rocket for $2.5 million. It costs you more than that to put the punk under it to light it off!

James Watt (left) and Secretary Morton join in presenting a $102,000 matching grant to Robert Dunkeson, Missouri Outdoor Recreation Liaison Officer (second from right). E. R. Phelps (right) is President of Peabody Coal Company, which donated 1,000 acres of strip-mined land to cover the State share of the demonstration project grant.

I feel that the right kind of economic incentives should be built into the whole proposition of mined land restoration and reclamation. I was not facetious when I said that there should be a tax benefit for the contribution that Peabody has made. There should be.

I am really excited about the fact that the Bureau of Mines, which is essentially a developmental or mining organization, has gone into the research effort to try and come up with new technology of finding the end or searching out a new use for mined properties, benefitting all mankind. They are doing a good job. I think they have about $2.8 million in their current budget for this. I hope that as we go downstream and the research proves effective, we can add to that. I think we can.

I believe that the abandonment of land—and of some of our historic old buildings—is a sin we should no longer live with. Land is too precious in the inventory of our heritage to let that happen.

If we tend to abandon things, the next generation that comes along and sees that we did not care enough to reclaim or restore or reorient will ask what is in it for them. They will say, "Why should we do it—this is part of civilization? This is the exhaust pipe of the civilized combustion operation or system, and we've just got to expect it." Other nations of the world that have had to live on a plot of ground, relatively small compared to ours, have found that they cannot live in this atmosphere of abandonment, in this atmosphere of just letting a piece of land or a fine old building go. Either preserve it, reclaim it, or tear it down.

I think we must recognize these simply as housekeeping duties that our civilization must perform if it is to survive, particularly as we go forward into a more programmed finite situation.

Even though there are only 2300 years of coal remaining under one set of calculations, there is nothing finite about our basic fossil fuel or mineral resources. We are now importing minerals that we did not import for a long time. Look at the amount of iron ore we are bringing in from other countries. Look at the amount of hard rock minerals and specialized minerals that we are bringing in from other countries. Unless we develop a domestic base, we are going to be in deep trouble.

I am excited that we are providing recreation in the reclamation of these areas, and that we have put together this team with the Bureau of Outdoor Recreation in the center as a catalyst, and that private industry and local government are part of the team.

We are not just doing this so somebody can go out and have a picnic with French bread, wine, and a pretty girl in the park.

We are leading the way to a new ethic, a new kind of architecture. An architectural ethic that says: We no longer can abandon; we no longer can let the exhaust of our civilization lie unattended across the land. We have an opportunity to meld the works of man with the works of God and nature in a whole new reconstructive way.

Perhaps if we can become part of the creation of new beauty and restoration we will abandon some of our other activities in the areas of crime, and the self-abandonment we are seeing in the inner cities. We are increasing the habitat for those elements of ecology which will not survive if man does not lend a helping hand to migratory waterfowl and indigenous land species.

They are part of us; they are part of us psychologically; they are part of our heritage on this planet. We cannot abandon them. If we will get excited about this proposition, and we can within the foreseeable future, think of the pace we will set for the next generation.

This has been a good conference. The Bureau of Outdoor Recreation is doing one good job. Jim Watt, you particularly have given it a kind of leadership that I am proud of. You have provided wonderful leadership. The fact everybody is here, Jim, doing this, the fact we are putting together a new land ethic, will give the Congress a sense of confidence. It will give the whole country a sense of confidence in what we are doing.

I am excited about this proposition.

We are at the beginning of a new epic in the environment; I hope we are at the beginning of a new ethic in the consumption and development of energy.

I believe that when we roll by the milestone, the people who are then in these jobs, these seats, and before this podium will say, "Well, you know, back in the decade of the 70's, they got on the ball and began to do something, and we are all thankful."

REGIONAL CONFERENCES

A series of conferences on Mined Land Reclamation for Outdoor Recreation will be held in the Bureau of Outdoor Recreation's seven Regions. The schedule for these follows:

Northwest Region, Spokane, Wash., October 18-19, 1973

Pacific Southwest Region, The Kiwanis Hut, at East Bay Regional Park District's Temescal Recreation Area, Oakland, Calif., July 12, 1973

Mid-Continent Region, New Albany Hotel, Denver, Colo., August 16-17, 1973

South Central Region, Albuquerque, N. Mex., July 30-31, 1973

Lake Central Region, Kent State University, Kent, Ohio, May 22-23, 1973

Southeast Region, Georgia State University, Atlanta, Ga., September 10-11, 1973

Northeast Region, Pennsylvania State University, University Park, Pa. September 24-25, 1973

Details of these regional conferences may be obtained by contacting Bureau of Outdoor Recreation Regional Directors as listed on the inside front cover.

FEDERAL FINANCING OF OUTDOOR RECREATION

Department of Agriculture

Agricultural Stabilization and Conservation Service. Secretary of Agriculture Earl L. Butz has announced that a 1972 pilot program testing the feasibility of providing public access for recreation on the nation's farms and ranches near urban areas will be continued in 1973.

"The demand for outdoor recreation areas has never been greater," Butz said. "Many farms and ranches are located near heavily populated areas and have desirable open spaces offering important recreational possibilities."

The program, administered by the Agricultural Stabilization and Conservation Service (ASCS), is being conducted during 1973 in eight counties in each of the States of Colorado, Indiana, Iowa, Louisiana, Michigan, North Dakota, Oklahoma, Oregon, Pennsylvania and South Carolina.

Farmers in the pilot counties who are participating in the Federal set-aside programs for feed grain, wheat, or cotton are eligible to take part, and thereby receive additional payments if they agree to permit the public to have access to their land for hunting, fishing or hiking.

Contact: Agricultural Stabilization and Conservation Service, Department of Agriculture, Washington, D.C. 20250.

Department of the Army Corps of Engineers

The Army Corps of Engineers has announced final guidelines for use of developed recreation facilities at Corps lake projects. The final guidelines, published in the Federal Register on March 26, comply with 1972 congressional legislation which requires that Federal agencies collect uniform fees for comparable recreation facilities provided at Federal expense.

The guidelines establish a range of fees for use of five types of recreation facilities: Camp and trailer sites, group use sites, highly developed multi-use sites, electrical hookups and elevators. Many public use facilities at Corps projects are available to the public without charge. No recreation use fees, for example, will be charged for access to water, primitive, or slightly developed areas, visitor centers, overlook sites, or use of boat launching ramps, unless mechanical or hydraulic equipment is used.

Each District Engineer will publicize the specific recreation facilities in his district where recreation use fees will be collected, the fees for each site, and the periods during which fees will be collected.

Contact: Department of the Army, Office of the Chief of Engineers, Washington, D.C. 20314.

Department of Housing and Urban Development

Open Space Land Program. A moratorium was declared January 5, 1973, on additional funding approvals in several Department of Housing and Urban Development programs, including the Open Space Land Programs and historic preservation. The program is considered terminated, with the possible exception of a few projects which meet stringent technical criteria.

Community Development Special Revenue Sharing. The Administration's budget proposes a funding level for special revenue sharing of $2.3 billion to be made available in fiscal year 1975. These funds would be made available beginning July 1, 1974.

Under the Community Development Special Revenue Sharing program, communities will receive block grants, determined by formula, to be used for a wide variety of community development activities.

Allocation of funds becomes the responsibility of the local governing body. Open space and historic preservation needs would be presented to the local chief executive for inclusion in the locally-determined community development program.

Comprehensive Planning Assistance Program. A wide variety of activities still is eligible under the Comprehensive Planning Assistance Program authorized by Section 701 of the Housing Act of 1954. Under the proposed fiscal year 1974 budget, all 701 grants are to be made to the States for allocation according to State priorities.

Contact: Assistant Secretary for Community Development, Department of Housing and Urban Development, 451 7th Street, S.W., Washington, D.C. 20410.

Department of the Interior
Bureau of Outdoor Recreation

In a recent budget statement, Bureau Director James G. Watt outlined requested appropriations for fiscal year 1974:

"At a time of crucial economy and belt tightening the Bureau's Land and Water Conservation Fund will utilize a combination of carryover funds and new appropriations to sustain an active program of State grants and Federal acquisitions. A summary of the Bureau's proposed $268 million in obligation authority appears in the following table.

"We will have a $178.1 million grant program which will eliminate idle carryover funds even as it provides $50 million in new monies to State recreation programs.

"The $80 million Federal land acquisition program—part of an estimated $111 million in unobligated carryover—will sustain an effort at about the level of the two preceding years. Federal acquisition will be continued in Fiscal Year 1974 through effective reprogramming of funds by the four agencies for which we act as 'banker' —N.P.S., B.S.F.W., B.L.M., and the Forest Service.

"A quarter-million dollars being requested for the Nationwide Outdoor Recreation Plan will see that important objective through to completion in calendar 1973," Watt said.

BUREAU OF OUTDOOR RECREATION
ESTIMATED OBLIGATIONS*
(In millions)

F.Y. 1974	F.Y. 1973	
$178.1	$220.0	The State side of the L&WCF
(128)		(Carryover)
(50)		(New appropriations)
80.0	87.0	Federal acquisition
		(All carryover for Fiscal Year 1974)
5.2	5.2	BOR administrative expenses
263.3 SUB TOTAL	312.2	(Total L&WCF obligational program)
4.4	4.1	Salary and expenses, an increase
$267.7 TOTAL	$316.3	

*Does not include transfer funds

Federal Acquisition of Land and Water Areas	Estimated Program in 1973	Estimated Program in 1974
National Park Service	$53,460,000	$59,400,000
Forest Service	27,000,000	18,000,000
Bureau of Sport Fisheries & Wildlife	4,200,000	2,400,000
Bureau of Land Management	1,800,000	200,000
Redwoods National Park	540,000	
	$87,000,000	$80,000,000

Flood Plains for Parks and Recreation. Shortly after Hurricane Agnes, Secretary Morton directed the Bureau of Outdoor Recreation to give top priority to flood-damaged recreation projects, and authorized the use of contingency reserves from the Land and Water Conservation Fund for their rehabilitation. He also encouraged State and local governments to follow land use planning procedures which would devote more flood plains to recreation and other conservation purposes.

Some examples of these efforts follow. In each case planners have either focused on uses of flood plains that would minimize the possibility of future damages, moved the recreation facilities being restored to less vulnerable locations, or made those facilities flood-resistant.

North Carolina. A $41,643 grant from the Land and Water Conservation Fund's Contingency Reserve will be used to rebuild facilities at seven flood-damaged North Carolina parks on the southern shores of Kerr Reservoir.

Contact: Office of Recreation Resources, Department of Natural and Economic Resources, Raleigh, N.C. 27602.

Pennsylvania. A grant of $476,238 from the Contingency reserve of the Land and Water Conservation Fund will help the State of Pennsylvania to restore the flood-damaged Shikellamy State Park marina on Packers Island in the Susquehanna River.

Another grant from the Land and Water Conservation Fund Contingency Reserve to Pennsylvania will provide $105,398.50 to restore 10 flood-damaged State park recreation facilities in eastern Pennsylvania's State Parks Region IV.

Contact: Pennsylvania Department of Environmental Resources, P.O. Box 1467, Harrisburg, Pa. 17120.

STATE AND LOCAL FINANCING OF OUTDOOR RECREATION

Arizona. The City of Tucson voted to support a $51 million bond issue in February 1973. Ten separate issues were passed by the electorate and the Tucson Parks and Recreation Department received favorable support for its $8,455,000 share.

The department plans to use these funds to (1) develop and improve their local program, (2) make general improvements and acquire land, (3) develop two golf courses, (4) construct a gymnasium, tennis courts and senior citizens center.

Contact: Tucson Parks and Recreation Department, Tucson, Ariz. 85202.

California. On January 23, 1973, residents of Marinwood, a northern Marin County unincorporated area, passed a $600,000 bond issue providing for the acquisition of 350 acres of open space land. Cost to the property owner will be a $30 increase in annual property taxes.

Contact: George H. Gnoss, Marin County Clerk, San Rafael, Calif. 94903.

California. In anticipation of 1974 Bond Act funds, the California Department of Parks and Recreation has called attention to the success story of the 1964 Bond Act money.

The 1964 Bond Act established a $150,000,000 program for the acquisition and development of parks and recreation areas. The State Park System was allocated $105 million, the Wildlife Conservation Board $5 million and local agencies $40 million.

Of the $105 million allocated to the Department of Parks and Recreation, $85 million was to be used for acquisition and $20 million for development. Of the $85 million for acquisition, there were 40 authorized projects which added a total of 32,625 acres to the State Park System. This included 183,789 lineal feet of new ocean frontage, 61,451 of new river frontage and 7,700 lineal feet of Lake Tahoe frontage (Sugar Pine Point State Park). This added 12 new units to the State Park System of which three are State Historic Parks. Altogether this added acreage to 24 projects which front on the ocean.

The development portion of the bond had authorized projects providing 1,126 campsites, 115 picnic sites, group camping for 250 persons, parking for 2,500 cars, and restoration or stabilization on three State Historic Parks.

Of the $40 million allocated to local government, applications were received representing all 58 counties. The Bond Act required that all applications be accompanied by countywide area or regional master or general plan in order to qualify for the grant.

Contact: Dick May, Coordinator, California Department of Parks and Recreation, Sacramento, Calif. 95814.

Michigan. Voters in Ann Arbor have approved a bond issue which will provide $800,000 for construction of a network of bicycle paths. Planned for the first phase of the network are about 90 miles of bikeways, with 18 miles of separate paved pathways, 30 miles of signed routes on residential streets, 27 miles of separated marked lanes on busier streets, and 17 miles of sidewalk bikeways. All schools and parks in the city will be interconnected by the routes.

The plan began to take shape two years ago with a citizen group organization called the Ann Arbor Bicycle League. This citizen group has worked actively to incorporate planning for bicyclists as a part of an overall transportation system for the city. At the same time the $800,000 bond issue was approved, voters also accepted a proposal to levy a 2.5-mil tax to subsidize a public transit system.

Contact: Ann Arbor Bicycle League, 417 Detroit Street, Ann Arbor, Mich. 48104.

New Hampshire. The New Hampshire Charitable Fund, working through the Society for the Protection of New Hampshire Forests, has established a $100,000 revolving fund for loans to regional or Statewide organizations and government agencies for immediate acquisition of threatened lands. Criteria for consideration of a loan include the land's importance as open space, its suitability for recreation and education, or its significance to natural history or forestry. If acquired, the land should be for public use and not used for nonconservation purposes.

Contact: Society for the Protection of New Hampshire Forests, 5 State Street, Concord, N.H. 03301.

Pennsylvania. Montgomery County, adjacent to Philadelphia, has a 10-year-old open space grant program which is unique in the State. Under the program, the county pays 20 percent of the cost or $10,000 (whichever is higher) toward open space acquisition. From 1963 through 1972, the county received 96 applications and allocated more than $652,000. To date, 33 municipalities have spent $400,000 to acquire 1,600 acres of open space. The municipalities are mainly urban, representing 78 percent of the county's population.

Contact: County Planning Commission, Montgomery County Court House, Norristown, Pa. 19404.

FEDERAL ORGANIZATION AND ADMINISTRATION

President Nixon in May 1973 rescinded orders by which he had established a "Supercabinet" of Counsellors. Secretary of Agriculture Earl L. Butz for 4 months had served as Presidential Counsellor for Natural Resources. White House press announcements indicated that the President would operate with a direct line of communication with members of the Cabinet.

Secretary of the Interior Rogers C. B. Morton said the functions of the "extra layer of government"

already were being accomplished by the Office of Management and Budget and the Domestic Council.

Department of Agriculture

The Forest Service in March 1973 proposed to designate areas in its 155 National Forests on which off-road recreation vehicles would be allowed, banned, or restricted. The proposal was contained in a tentative environmental statement and administrative instructions delivered to the President's Council on Environmental Quality. It also was detailed in the Federal Register. After a period for public comment, final regulations will be issued.

Contact: Forest Service, Department of Agriculture, Washington, D.C. 20240.

Department of the Army
Corps of Engineers

The Corps of Engineers reports 323 million recreation days of use in calendar year 1972 at Corps lake and waterway projects. This compares with 310 million in 1971.

Contact: Chief of Engineers, ATTN: DAEN-CWO-R, Department of the Army, Washington, D.C. 20314.

Department of the Interior

Secretary of the Interior Rogers C. B. Morton announced several major organizational changes. In a Secretarial Order realigning the Department, Secretary Morton cited as one of his purposes the organizational emphasis on management and utilization of energy and technology resources.

The Assistant Secretary for Fish and Wildlife and Parks, Nathaniel P. Reed, discharges the duties of the Secretary with respect to the development, conservation and utilization of the fish, wildlife, recreation, and national park resources of the Nation; and represents the Department in the coordination of marine environment quality and biological resources programs with other Federal agencies. Secretary Reed will administer the Bureau of Outdoor Recreation, the Bureau of Sport Fisheries and Wildlife, and the National Park Service.

The Assistant Secretary—Energy and Minerals, Stephan A. Wakefield, is responsible for operating Interior's electric power and fossil fuel energy programs; making long-, intermediate-, and short-range plans for developing and conserving energy resources; recommending changes in energy resources; and recommending changes in energy policy to meet national needs. Secretary Wakefield will direct the activities of the Bureau of Mines, Geological Survey, the Office of Oil and Gas, the Bonneville Power Administration, the other power marketing agencies of the Department, and the Office of Coal Research.

The Assistant Secretary—Land and Water Resources, Jack O. Horton, is responsible for land utilization and management, water development and research, and comprehensive land and water resources planning. Secretary Horton will be responsible for the activities of the Bureau of Reclamation, the Bureau of Land Management, the Office of Saline Water, the Office of Water Resources Research, and the Office of Land Use and Water Planning (renamed from the Office of Regional Planning).

Other major appointments by the Secretary include Kent Frizzell, former Assistant Attorney General, to be Interior's Solicitor; Dr. Laurence E. Lynn, Jr., former Assistant Secretary of Health, Education, and Welfare, to be Assistant Secretary of the Interior for Program Development and Budget; and James T. Clarke, former partner in the accounting firm of Coopers & Lybrand of Grosse Pointe Farms, Mich., to be Assistant Secretary of the Interior for Management.

Ronald H. Walker has been appointed Director of the National Park Service. The former Special Assistant to the President succeeds George Hartzog. Walker served as assistant to former Secretary of the Interior Walter Hickel and since has organized travel for President Nixon.

Johnny Horizon '76 Environmental Campaign Expanded and Redesigned. Secretary Morton has announced a new nationwide scope for the Department of the Interior's campaign Johnny Horizon '76—Let's Clean Up America for our 200th Birthday. The program serves as a catalyst in the drive to clean up America through citizen involvement with government, business, and industry support. To date, there are more than 1,500 sponsors including schools, churches, youth groups, conservation, civic, and commercial organizations. With the help of Johnny Horizon '76 environmental education kits, over 30,000 teachers have organized classroom ecology projects, school and park cleanups, and helped introduce their students to ecology.

Contact: Andrew F. Wahlquist, Office of the Secretary, Department of the Interior, Washington, D.C. 20240.

Everglades Jetport Pact Extended for Two Years. Secretary of the Interior Morton and the Secretary of Transportation announced that the agreement which halted construction of a huge jetport in the Florida Everglades has been extended for 2 years.

The pact, which was to expire January 16, was signed by the two Federal agencies, the State of Florida, and the Dade County Port Authority. It halted construction to allow a search for a new site, which has been located northwest of Miami "but which requires further study."

Three National Recreation Trails Designated. Secretary Morton announced designation of North Ridge Trail in Oak Ridge, Tenn., the Lake Park Bicycle Trail in Milwaukee, Wis., and the Warnimont Park Bicycle Trail in its Cudahy suburb as recreation trail components of the National Trails System.

Over 30 recreation and scenic trails on public and private lands now make up the National Trails System. National scenic trails, such as the Appalachian and Pacific Crest Trails, can be established only by the Congress. State, local, and privately owned and managed trails may be designated as national recreation trails upon approval of the Secretary of the Interior.

Contact: Division of Resource Area Studies, Bureau of Outdoor Recreation, Department of the Interior, Washington, D.C. 20240.

National Park Service

The Secretaries of Agriculture and the Interior have announced plans to operate 102 Youth Conservation Corps camps for 8 weeks this summer. The two departments plan to employ about 3,500 young men and women aged 15 through 18, using $3.5 million appropriated by Congress for this third summer of the YCC. About half of these will be employed in the National Forests by the Department of Agriculture, while the others will work under the Department of the Interior on National Parks, and lands of the Bureau of Indian Affairs, Bureau of Sport Fisheries and Wildlife and Office of Territories.

Contact: National Park Service, Department of the Interior, Washington, D.C. 20240.

Director Watt, Dr. Robert H. Kupperman of the President's Property Review Board, and Roman H. Koenings, BOR's Deputy Director, present a Bureau of Outdoor Recreation Certificate of Merit to Charles Montgomery, Assistant Chief, Division of Cooperative Services (listed left to right). Bureau of Outdoor Recreation photo.

Washington Governor Daniel J. Evans, U. S. Representative Julia Butler Hansen, and State Senators Robert C. Bailey and Robert Charette (left to right), celebrate the no-cost transfer of a 212-acre tract of Federal surplus property to the State Parks and Recreation Commission. Bureau of Outdoor Recreation Northwest Region photo.

John Visher (left) received the Bureau of Outdoor Recreation Certificate of Merit from Thomas M. Thawley, Commissioner of Property Management and Disposal, General Services Administration, and Heaton Underhill, BOR's Assistant Director for State Programs. Bureau of Outdoor Recreation photo.

Bureau of Outdoor Recreation

Two Bureau of Outdoor Recreation employees recently received honors for exceptional work in the Federal surplus property portion of the President's Legacy of Parks program.

John Visher of Falls Church, Va., assembled extensive information and history on the 1,300-acre Naval Live Oaks Reservation, Santa Rosa, Fla., which resulted in its reversion to the Government for use in Gulf Islands National Seashore. The area is valued at more than $7.5 million.

Charles Montgomery of Arlington, Va., was cited for sustained and enthusiastic contribution to the speedy implementation of the program which provides surplus Federal real property to State and local governments for public park and recreation use.

Contact: Bureau of Outdoor Recreation, Department of the Interior, Washington, D.C. 20240.

Tennessee Valley Authority

The Tennessee Valley Authority has designated a 2,500-acre wooded tract in Land Between the Lakes as an Off-Road Vehicle area where all motorized off-road riding will be confined. Land Between the Lakes is TVA's 170,000-acre outdoor recreation demonstration area in west Kentucky and Tennessee.

Contact: Information Office, Tennessee Valley Authority, Knoxville, Tenn. 37902.

Department of Transportation
Federal Highway Administration

Five State highway departments, a city public works department, a land development firm, and an oil company service station won first place awards in the 1972 contest sponsored by the Department of Transportation. The fifth annual contest attracted 603 entries from all sections of the country.

First place winners were:

Highway in its rural environment. Arkansas State Highway Department; State Highway 43 in the heart of the Ozarks 3 miles north of Ponca.

Highway in its urban environment. Washington Department of Highways; section of Northeast 12th Street in Bellevue.

Bridge, ramp, overpass, interchange area, tunnel approach, or other structural feature. California Department of Public Works; William M. Sell Memorial Bridge on Highway 49 east of Mariposa.

Safety rest area with sanitary and other facilities. New Mexico State Highway Department; Acomita rest area shelters on I-40 west of Albuquerque.

Highway-oriented private enterprise, industrial and office building, hotel, motel, etc. Haft-Gaines Company, Lauderhill, Fla.; landscape screening between urban highway and residential development adjacent to Florida SR 816 in Lauderhill.

Multiple use of highway right-of-way. City of Chicago Department of Public Works; river plaza on narrow strip of right-of-way between lower Wacker Drive and the Chicago River.

Preservation of wildlife or natural areas. California Department of Public Works; alignment adjustment of Route 255 Freeway at design stage to protect American egret rookery on Eureka Indian Island.

Preservation of Historic Sites. Illinois Department of Transportation; restoration of old State Capitol in Springfield by relocation of three State routes and closing of two downtown streets. Reconstruction of area permitted inclusion of new 470-car underground parking lot.

Landscape treatment along roadside and interchanges. California Department of Public Works; treatment of retaining wall on I-280 at Potrero Hill in San Francisco.

Chicago's Department of Public Works won first place for the multiple use of highway right-of-way in an annual Department of Transportation national contest. Department of Transportation photo 72-1366.

Motorist Service Station. Atlantic Richfield Company in Pacific Grove, Calif., at the entrance to the 17-mile drive on the Monterey Peninsula.

Contact: Federal Highway Administration, Department of Transportation, Washington, D.C. 20590.

STATE AND LOCAL ORGANIZATION AND ADMINISTRATION

Georgia. The 1973 session of the Georgia General Assembly adopted a precedent-setting bill to protect the natural qualities of urban rivers. Entitled the Metropolitan River Protection Act, House Bill 1093 is designed primarily to cover a 48-mile stretch of the Chattahoochee River in Metropolitan Atlanta.

The act sets rigid zoning standards for developments within 2,000 feet of the river, requiring users of all land or water within the 2,000-foot zone to obtain approval by both the local government and the area planning and development commission.

The act prohibits construction of permanent structures in the flood plain. Unlike many local flood plain zoning ordinances, it also prohibits cutting and filling in the flood plain to create lots suitable for building above flood level. Since most of the Chattahoochee's banks are flood plain, this provision has the effect of banning most streamside construction.

In addition, the act prohibits all construction within 150 feet of the river bank on private or public property, including public utilities such as sewer and powerlines.

The act calls on the Atlanta Regional Commission to prepare and periodically to update a plan to guide development within the river corridors.

Contact: The Atlanta Regional Commission, Suite 910, 100 Peachtree Street, N.E., Atlanta, Ga. 30303.

Washington. The Whatcom County Park Department hit the zenith of professional excellence in 1972.

William J. Dittrich, Chairman of the Whatcom County Park Board, received the 1972 Layman Award of the Washington Recreation and Parks Society. This annually goes to the outstanding nonprofessional who has led his community and the State in development of better parks.

The County Park Board received the Land Ethic Award of the American Society of Landscape Architects for developing parks in accord with needs of the community and limitations of the environment while maintaining ecological character.

Whatcom County's Samish Park received the national Honor Award for Project Design by the Department of Housing and Urban Development. Representing excellence in design without disturbing the natural setting of the land, the park includes a service building, parking space, picnic area, approximately 2 miles of trails, a fishing pier, boat dock, swimming beach, and children's play areas.

Contact: Gary W. Chadwick, Whatcom County Park Department, 3373 Mount Baker Highway, Bellingham, Wash. 98225.

FEDERAL PLANNING, RESEARCH, CONFERENCES, AND SPECIAL STUDIES

Department of the Interior

Bicycles U.S.A. Conference. A national conference on "Bicycles U.S.A." met May 7-8, 1973, in Cambridge, Mass., jointly sponsored by the Departments of the Interior and Transportation.

The conference covered a broad range of problems facing cyclists from safety to bikeway shortages. Conference workshops and discussions covered:

Increasing bicycle use
Bicycle safety education and law enforcement
Planning for transportation and recreation
Countermeasures for bicycle theft.

The conference proceedings will be published.

Contact: Bureau of Outdoor Recreation, Department of the Interior, Washington, D.C. 20240.

Bureau of Outdoor Recreation

The Mid-Continent Regional Office of the Bureau of Outdoor Recreation conducted a bikeways conference March 1-2, 1973, in Denver, Colo., with emphasis on how to get bikeways developed and into use. Approximately 40 decisionmakers from State and local governments attended. Panelists included knowledgeable bikeways implementers from California, Colorado, Illinois, and Oregon.

Whatcom County, Wash., officials William Dittrich, Park Board Chairman, (left) and Frank Roberts, County Commissioner, hold awards their Park Department received in 1972. Whatcom County, Wash., photo.

Contact: Julian F. Rhinehart, Bureau of Outdoor Recreation, Mid-Continent Regional Office, P.O. Box 25387, Building 41, Denver, Colo. 80225.

Lake Tahoe Report. Secretary of the Interior Morton has recommended Federal support for regional, State, and local preservation in the Nevada-California Lake Tahoe Basin, rather than establishment of a National Lakeshore.

A departmental study report and letter sent to the White House and the Congress stated that non-Federal preservation and recreation programs would serve the national interest more than a National Lakeshore. The latter alternative would result in an increase in public use in the Basin, endangering Tahoe's fragile resources.

Copies of the Lake Tahoe Report are available for $1.25 from the U.S. Government Printing Office, Washington, D.C. 20402.

Nationwide Outdoor Recreation Plan. Copies of the first draft of the Nationwide Outdoor Recreation Plan and an environmental quality statement have been completed and released for comment. Bureau of Outdoor Recreation Director Watt has stated that the Plan will be completed on schedule in November 1973.

The purpose of the plan is two-fold: To provide a framework within which Federal outdoor recreation and related programs will be developed and managed, and to serve as a guide for the coordination of outdoor recreation efforts by all levels of government and the private sector.

Work on the plan has been directed to three areas that had thwarted earlier planning efforts: Failure to elicit citizen participation; lack of involvement of Federal, State, and local agencies in the planning effort; and inadequate economic analysis of short and long range budget implications.

Two major data collection efforts which are basic to the whole plan are complete. One is a personal interview survey to determine the recreation habits of the American public during 1972; the other is an inventory of public outdoor recreation areas and facilities conducted on a county-by-county basis.

HOW EFFECTIVE ARE YOUR COMMUNITY RECREATION SERVICES?

By Robert B. Fiore

Bureau of Outdoor Recreation

How do citizens rate recreation opportunities in their neighborhoods? Do they consider the facilities to be safe, clean, crowded? Are they satisfied with the kinds of programs and activities being offered? Do they use recreation facilities, and if so, how often? If they do not use them, why not?

Answers to such questions are important to mayors, city and county managers, and recreation and park officials who need to increase the effectiveness of public recreation expenditures because of their limited fiscal resources to satisfy growing demands for leisure-time activities.

Local government decision makers generally do not have reliable information about the effectiveness of their recreation services. The director of a large central city recreation department recently stated, "We are woefully uninformed as to who, what, and where our constituency is and what it needs." As revealed in a 1971 study, most jurisdictions lack a broad-based, systematic procedure for collecting and comparing data through time and for various sections of the community.[1]

Since 1971, The Urban Institute, with support from the Interior Department's Bureau of Outdoor Recreation and the Ford Foundation, has been developing and testing systematic methods by which local governments might regularly measure the effectiveness of their recreation services.[2] The recreation agencies of two major cities, Washington, D. C., and Rockford, Ill., served as testing grounds for the new measurement approach. The findings from this effort are in the Bureau of Outdoor Recreation report, How Effective Are Your Community Recreation Services?[3]

Features of the report include the following:

Examples of locally obtained data and their use in planning, budgeting, and program analysis.

Descriptions of citizen surveys, which are found to be one of the few feasible means of obtaining detailed information on citizen perceptions and behavior regarding recreation. Survey guidelines and questionnaires are included.

Basic mapping procedures for measuring the physical accessibility of recreation services to various population segments of the community.

Discussions of effectiveness measures which rely on readily available data.

Estimates of costs and personnel needs for establishing and operating the recommended procedures for various size governments. Use of existing local government staff is suggested.

Procedures for citizen neighborhood measurements to indicate how various parts of the community are being served.

It seems likely that effectiveness data of the type developed will play an increasing role in the future management of park and recreational agencies for a variety of reasons:

Decentralization. With the trend away from centralization of services, local recreation managers will need better techniques to track and control their programs.

Increasing Professionalism. Park and recreation managers with more expertise will demand the type of information produced by effectiveness measurements.

Shifting Leisure Patterns. It is becoming more difficult to anticipate and plan for citizens' changing needs without a regularized system of feedback.

Pressures from Citizen Groups. Individuals and groups, sometimes through class action suits, are more insistent on obtaining an equitable share of public services. Officials will require more detailed information about who pays and who benefits from their programs.

Public Impact Requirements. As units of government increasingly are called on to quantify their impact on the public, park and recreation agencies are likely to be required to evaluate and justify their services in a similar manner. Federal concern about use of revenue sharing funds may multiply the requests for such impact statements.

[1] *Brown, Robert and Donald M. Fisk; "Recreation Planning and Analysis in Local Goverment." The Municipal Yearbook—1973. Washington, D. C.: International City Management Association, 1973.*

[2] *This work was built on an earlier Urban Institute conceptual paper. See Hatry, Harry P. and Diana R. Dunn. Measuring the Effectiveness of Local Government Services: Recreation. Washington, D. C.: The Urban Institute, 1971.*

[3] *Free distribution through the National Recreation and Parks Association, International City Management Assocation (ICMA), National Association of Counties (NACO), and National League of Cities (NLC). Copies will soon be available through the Government Printing Office, Washington, D. C. 20402.*

Measure of Effectiveness Data — Status Report
Washington, D. C. — May 1971 and 1972

Measure	May 1971 City-wide	May 1972 City-wide	Service Areas — May 1972 1	2	3	4	5	6	7	8	9
Overall Citizen Rating											
Percent Rating Very Good	N/A	14%	14%	18%	10%	10%	16%	14%	14%	16%	16%
Percent Rating Poor	N/A	22%	21%	18%	35%	26%	20%	18%	31%	6%	13%
Overall User Rating											
Percent Rating Very Good	N/A	25%	36%	19%	22%	12%	27%	26%	12%	36%	40%
Percent Rating Poor	N/A	3%	2%	2%	2%	3%	0%	9%	8%	0%	0%
Crowdedness											
Percent Users Rating Poor	N/A	9%	4%	6%	7%	11%	9%	11%	4%	15%	20%
Facility Upkeep											
Percent Users Rating Cleanliness Poor	N/A	6%	2%	2%	4%	3%	11%	11%	15%	4%	0%
Percent Users Rating Maintenance Poor	N/A	8%	6%	8%	16%	6%	11%	3%	12%	8%	0%
Helpfulness-Attitude of Staff											
Percent Users Rating Poor	N/A	3%	4%	2%	2%	3%	5%	3%	4%	4%	0%
Hours of Operation											
Percent Users Rating Poor	N/A	3%	6%	0%	4%	9%	2%	0%	4%	0%	7%
Safety											
Percent Users Rating Poor	N/A	4%	2%	6%	2%	6%	5%	9%	8%	0%	0%
Serious accidents per 1,000,000 hours use	.19	.17	2.1	1.0	0	.7	0	0	0	.6	0
Deaths per 10 million hours use	0	0	0	0	0	0	0	0	0	0	0
Participation											
Percent using one or more times	N/A	21%	19%	20%	20%	22%	28%	22%	16%	27%	17%
Attendance — Total	1,124,000	1,305,000	95,000	97,000	295,000	155,000	121,000	212,000	91,000	182,000	57,000
Hours of Attendance — Total	N/A	3,011,000	228,000	223,000	738,000	356,000	328,000	551,000	165,000	310,000	113,000
Physical Accessibility											
Percent Within ½ Mile of Facility	91%	91%	96%	91%	90%	89%	100%	100%	100%	67%	95%
Variety											
Average No. Programs per Facility	N/A	7	9	7	8	7	8	7	7	8	8

The "Human" Emphasis. Traditional measurements of "hardware" and acreage per capita of parks are proving insufficient as consideration of individual needs grow.

Because local government exists in a world of limited budgets, manpower, and time, the watchword in developing the new measurement tools was "practical." Excessively expensive or technically sophisticated procedures were avoided. The yearly cost of obtaining information under the proposed effectiveness measurement system is estimated at $20,000 to $40,000 for a jurisdiction of 500,000 or more people which operates a large recreation agency (500 or more employees). For a jurisdiction of about 250,000 people with a recreation agency of about 100 employees, the annual cost should be $15,000 to $30,000. For local governments with less than 100,000 citizens and 40 or fewer full-time employees the cost should be $10,000 to $20,000 per year. The *net* additional cost to most governments, however, would be much less than these figures indicate. Many jurisdictions, for instance, already collect some of the needed data. Also, local government personnel already working in the area of recreation planning and research should be able, after initial technical assistance, to collect and analyze the effectiveness data called for in this report on a routine basis.

The effectiveness measure tested in Washington, D. C., and Rockford, Ill., (see Table) and described in the report are:

1. An overall citizen rating of recreation services.
2. An overall participant household rating of recreation services.
3. Citizen rating of crowdedness.
4. Citizen rating of facility and equipment condition and upkeep.
5. Citizen rating of helpfulness and attitude of recreation staff.
6. Citizen rating of hours of operation.
7. Safety (number of accidents and citizen rating).
8. Participation (percent of population using facilities).
9. Attendance (total visitation).
10. Total hours of attendance.
11. Physical accessibility.
12. Variety of programs and activities.

These measures are not all-inclusive. They are intended to offer local governments a starting point for launching an effectiveness measurement system.

Effectiveness measures must be put into a decision-making framework to justify their cost. Ideally, effectiveness data should be collected and displayed to coincide with key points in the budget cycle. Specific decision-making uses for the data are:

1. **Monitoring.** Management currently monitors fiscal status. It should monitor the effectiveness of the programs as well. Effectiveness monitoring can identify trouble spots, suggest remedial action, or call attention to matters requiring further investigation. It can also indicate how successful major program changes have been.

2. **Planning and Budgeting.** Effectiveness measurements can be useful in allocating existing funds, identifying citizen desires for new programs, and cutting back old programs which are not working or have fulfilled their purpose.

   The measures of accessibility, attendance, variety, crowdedness, and user satisfaction can help answer questions such as: Does there seem to be a need for more swimming pools? In what parts of the community? Where should the environmental education program be located? Does there seem to be a need for a senior citizens' recreation program?

3. **Program Evaluation and Analyses.** After a program is selected and tried, the results should be evaluated. This can be accomplished through the use of effectiveness measurement data that are collected at selected periods of time before and after program implementation.

4. **Coordination.** There are a number of suppliers of recreation services, private as well as public, in every urban area. Coordinating these agencies and their activities is difficult even within a single political jurisdiction. Measures of effectiveness can be directed at both nongovernment and government activities. They also offer the opportunity for different recreation suppliers to work together. For example, the local Health and Welfare Council, YMCA, and commercial recreation interests might work together with the local government to conduct a citizen survey to improve their respective decision making.

It should be stressed that the effectiveness measures, although tested and found feasible, have not yet had time to undergo extended operational experience. The usefulness of effectiveness data for decision making by mayors, city and county managers, and park and recreation professionals appears reasonable—but it is a tentative conclusion so far. It remains to be seen whether the data are actually used for decision making and, if so, whether better decisions result. The considerable interest among local officials suggests that increased participation in effectiveness measurement projects will help give more definitive answers to these questions. In the meantime, it is anticipated that the work to date will stimulate recreation managers and planners to improve the measurement of the effectiveness of their recreation services.

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James Watt (left) and Secretary Morton join in presenting a $102,000 matching grant to Robert Dunkeson, Missouri Outdoor Recreation Liaison Officer (second from right). E. R. Phelps (right) is President of Peabody Coal Company, which donated 1,000 acres of strip-mined land to cover the State share of the demonstration project grant.

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